

HISTORY OF
THE DEPARTMENT OF ZOOLOGY AND ENTOMOLOGY
AND
THE DEPARTMENT OF ZOOLOGY
AT
BRIGHAM YOUNG UNIVERSITY

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October 2016

PREFACE

In March 2015 and 2016, a Zoology Department reunion lunch was held at the Sizzler Steak House in Orem, Utah. At the end of the meeting in 2015, I asked those present if anyone knew if a written history of the Zoology Department had been published. August Jaussi mentioned that at one time Herb Frost, had been working on a history. My attempts to locate a history written by Dr. Frost were unsuccessful, although the Harold B. Lee Library does have transcripts of brief oral histories of several former faculty members, including one by Herb Frost. I then realized that as a student and later as a member of the faculty, I had been privileged to know all of the retired full-time faculty members of the Department of Zoology as well as those still working at BYU, so I decided to try to compile a brief history of the department before many of us who are advancing in years are no longer capable of contributing our memories.

This work is divided into three segments. The first is the brief history itself organized in chronological order based on the tenure of each Chair of the Department. The second short section consists of memories contributed by individual faculty members. Although all former faculty members were invited to contribute to this section, only a few responded. The third section consists of curriculum vitae of members of the department. The purpose of this section was to highlight individual accomplishments of each member of the faculty who served in the department. All surviving faculty members were invited to submit their curriculum vitae to be included in this work. Many, but not all responded. For those who did not respond and for deceased members, I attempted to assemble a summary of their accomplishments from publicly available data bases, such as *Pub Med*, *Science Citation Index*, *Biosis*, *Zoological Record*, Department of Zoology Records, obituaries, and online searches. It became apparent that these sources are not necessarily comprehensive and that publications and other accomplishments would likely be missed. However, I am hopeful the inclusion of this information might provide a flavor for the stature and accomplishments of this remarkable group of scientists that comprised the faculty of the Department of Zoology and Entomology (1925-1970) and the Department of Zoology (1970-2002).

Finally, I have gained a poignant appreciation for each of my former teachers, mentors, and colleagues as I learned of their contributions in teaching, researching, mentoring, and publishing throughout their careers. I have the most profound respect and admiration for each of them.

HISTORY OF THE DEPARTMENT OF ZOOLOGY AND ENTOMOLOGY (1925-1970)
AND
THE DEPARTMENT OF ZOOLOGY (1970-2002)
BRIGHAM YOUNG UNIVERSITY

Biology at BYU prior to 1925.

Brigham Young University was spawned from Brigham Young Academy, a high school in Provo Utah, in 1903 (1). Courses in physiology, botany, and ornithology were taught in the 1904-1905 school year (2). Courses in plant physiology, botany, collection of zoological specimens, and taxidermy were added to the curriculum (1). A department of Biology was formed in 1908, with Dr. Ralph V. Chamberlain as department head (1). Only a few courses were offered that first year, including General Biology, Animal Histology, Vertebrate Embryology, Entomology, General Botany, Plant Physiology, Plant Histology, and Plant Taxonomy (3). Dr. Chamberlain was assisted by Chester G. Van Buren, Andrew T. Rasmussen, and Charles H. Carrol (1) (3). The next year (1909), Zoology, Human Physiology, and Neurology were added to the curriculum (4). Vertebrate Zoology was added in 1910 (5). An advanced physiology course was introduced in 1912 (6). Dr. Martin Henderson joined the faculty in 1915 as Professor of Biology and continued until 1923 (1). Professor Edwin Smart, a horticulturalist, taught the Entomology course (1). Physiology courses were taught by members of the medical staff, including Drs. Horace G. Merrill, L. Weston Oakes, and Charles H. Carrol, who returned after completion of his medical training (1).

The Vasco Tanner Era (1925-1958).

The Department of Zoology and Entomology was organized in 1925 with Vasco Tanner as the chair (1). Dr. Tanner graduated from Brigham Young University in 1915 and from the University of Utah in 1920 with a MA (studying Geology and Paleontology). He then served as chair of the Department of Biology at Dixie College from 1916 to 1924 before moving to Stanford University for his PhD work (1). At Stanford, Vasco was profoundly influenced by the great naturalist, David Starr Jordan, the President of the University. Although Vasco's principal interest was entomology, it was from Dr. Jordan that Vasco not only developed his interest in fishes but broadened his interest in all areas of biology (1). This vision expanding experience at Stanford prepared him well for organizing and developing the Department of Zoology and Entomology at Brigham Young University.

When first formed, the department was assigned two larger laboratories and two smaller ones with a small amount of office space in the Education Building on 500 North University Avenue in Provo (1). The equipment consisted of 30 microscopes (shared with the Botany Department) and there were few biological specimens for teaching. Lynn Hayward was a student at the time and revealed they only had one previously dissected dogfish for their Vertebrate Zoology course (1). Any other specimens used for teaching had to be collected by the students and faculty.

The absence of specimens for teaching and research was a glaring deficiency that Vasco decided should be quickly remedied. The summer of 1926, Vasco hitched a trailer behind a Model T Ford (owned by Clarence Cottam), convinced three students (Clarence Cottam, Lynn Hayward, and Claudeous Brown) to accompany him, and embarked on a six week specimen collection expedition along the shores of the Great Salt Lake, Weber County, Bear Lake, the Uinta Mountains of southwestern Wyoming and northeastern Utah, and the Uintah Basin, including the Dinosaur Quarry (1). Clarence Cottam later described this adventure (7):

In looking back on these rich, early experiences I feel that the most valuable training I received was on our summer field trips when we were away collecting insects, birds, rodents, and plants for the University. On these trips the graduate students were collecting and studying specific groups of organisms or problems for their respective theses. I was studying and collecting birds.

Students who participated will never forget such expeditions as those into northeastern Utah, the Bear Lake area of Utah and Idaho, and the Uinta Mountain area of Wyoming and Utah, especially the trip from Malta (Manila?), Daggett Co., Utah, over the high mountains to Vernal and Dinosaur Quarry. I believe we deserve the distinction of taking the first car over this rugged and steep mountain sheep trail. . . Then, we agreed that the assertion of our "taking" the old Model T, the "Beagle," over the mountain was more accurate than to say that we traveled in it. This so-called road had never been used for anything more than a sheep or cattle trail and certainly was not designed for an automobile, particularly those ancient Fords, for many times our vehicle had to be pushed or almost carried.

Because of the steep and rough "roads," we were several days making the trip. Before we reached the summit of the mountain, our provisions ran out. The last day of our climb had been slow and difficult and the distance traveled was but a few miles. We were all tired and hungry and the sum total of our provisions consisted of one small can of tomatoes! It was nearing sundown. We decided to push on and go over the next ridge to see if we could find a mountain stream where we could camp for the night. We expected, of course, that we would have to live off the land until we reached Vernal, hopefully a day or two later. At about dark, when we were wishing our wives or mothers had us, we entered a delightfully beautiful alpine meadow and to our great delight encountered a sheepherder and his flock bedding down for the night.

The bearded sheepherder had been in the mountains alone with his sheep for nearly a month, and without radio or other communication from the outside world, he was nearly as glad to see us as we were to see him. He remarked that it was an enlightening relief to have something besides his dog and sheep to talk to. When he learned that we were about starved, he promptly killed a near grown fatted lamb, made dough biscuits, and

with some choice canned goods saved for special occasions, he soon had us feasting on one of the most appreciated and tasty meals any of us can still remember.

This first collecting trip yielded numerous specimens of insects, fish (including a fossil collection from Wyoming), birds, rodents, amphibians, reptiles, and plants which could now be used by teachers, and students for teaching and research in the newly formed department (1) (7). This was the first of many regular summer excursions which would yield countless specimens for teaching and research and which provided many opportunities for graduate students.

Vasco was driven in his desire to expand and improve the zoological collections at Brigham Young University. Family vacations were most often spent camping with his family. His family quickly observed however, that these vacations into the desert, brush land or sand dunes had a dual purpose (8). Upon arrival in the Model T, Vasco would jump out of the car, gather his cyanide bottles, formaldehyde bottle, and insect net, and begin a day of collecting. At the end of the day he would return triumphantly to show his family his treasures, including a butterfly, beetles, a lizard and a rattle snake. After dark, the car lights were turned on to attract insects and Vasco would work long into the night expanding his collection. Even on the journey home, the children were instructed to watch for snakes. Annie Atkin Tanner, Vasco's wife, describes one experience as follows (8): *With a groaning of brakes and a heaving jerk, the car settled down and out jumped the collector. With a forked stick in one hand and a burlap sack in the other, the battle began. The children cried in fear that the snake might bite their father. I sat in wonderment, wishing that a snake had never been created. When this evil creature of Eve's downfall had been securely tied in the sack and placed between the two seats of the car below the children's feet, my husband settled down contentedly in the front seat. All the rest of the way home, we either listened to the hissing of one snake or the ominous rattle of another. I sat in uneasy fear lest one would escape and bite the children, who kept their feet on the seat all the way home.*

The Department of Zoology and Entomology offered Masters of Arts and Masters of Science degrees in Zoology and Entomology beginning 1925. The first MS degrees were awarded in 1928 to Claudeous Brown, Anson Call and Daniel Jorgensen (9). In 1930, D. Elden Beck received his MA degree (10) and in 1931, C. Lynn Hayward received his MS degree in Zoology (11).

By 1931, the biological collections were substantial due to the efforts of Vasco and his collaborators and students. The collection is described as follows in the Annual Catalogue for 1931-1932 (12) : *The natural history collections consist of a very complete collection of Utah fish, amphibians, reptiles, birds, and mammals. The collection is also supplemented by the Chester Van Buren collections of birds from Magdalena River of Colombia, South American, which consists of over a thousand skins; and the David Starr Jordan collection of fish from the Hawaiian Islands. The Entomological collection contains authoritatively named specimens in all the orders of insects. The pinned insects are placed in three hundred trays, 18x19 inches in size, two inches deep. The specimens are pinned in unit boxes. The Lepidoptera collection is a very complete one of Utah and the Great Basin region. It contains over six hundred named species and ten thousand specimens. It is made up of the famous Tom Spalding collection and the Chester Van Buren collection. The Coleoptera collection contains over five thousand*

determined species and twenty-five thousand specimens. It contains a very complete collection of weevils, 280 species from the Blatchley collection.

By 1931, a “well maintained” laboratory had been built at the mouth of the Provo River on Utah Lake (12). This laboratory was utilized for the Aquatic Zoology course taught by Vasco and other faculty for many years.

During those early years, Vasco shouldered most of the teaching, the exceptions being the Physiology course and the Health Education course which were taught by the University Medical Directors and assistants (Charles H. Carroll, Horace G. Merrill, L. Weston Oaks, and Lloyd L. Cullimore) and a few basic courses taught by Graduate students (13) (14) (15). Dr. Oaks (uncle of Elder Dallin H. Oaks) and his brother-in-law, Dr. Merrill maintained practices in ear, nose and throat medicine in Provo and served part-time at BYU teaching health classes and serving as medical directors (16) (17). Dr. Cullimore was a general practitioner who donated his time as a teacher (taught his first Physiology and Health classes in 1927) and as medical director (18). He established the student health program, caring for the BYU students without compensation. He later served as mayor of Provo.

Although his focus and training was primarily in Entomology, Vasco showed amazing versatility, teaching courses in Heredity, Comparative Anatomy, Animal Ecology, Ornithology, Histology, Embryology, and Ichthyology in addition to courses related to Entomology. By 1931, the Department of Zoology and Entomology was offering 21 different undergraduate courses (12). The Brigham Young University Catalogs show that Vasco taught at least 31 different courses during his tenure. Herbert H. Frost, who received both his BA and MA from the Department of Zoology and Entomology, described Vasco as a teacher: *Whenever Dr. Vasco came to class, he usually had not only the text, but about six or eight other texts or books that he brought in. He would use these to give further information to us on the subject under discussion. Another thing this did was to introduce us to a lot of good books in biology. He was a very enthusiastic individual, and kindled a desire for interest in many individuals over the years* (19).

C. Lynn Hayward was the second person to become a full-time faculty member in the Department. Lynn obtained his Bachelor's Degree at Brigham Young University in Zoology and Entomology in 1927 and then after teaching biology and English in Fielding High School near Bear Lake, Idaho for three years, continued working with Vasco Tanner to earn his Master's Degree in 1931 (20) (11). Immediately following completion of this degree, he was hired by the department with an annual salary of \$800 for half-time employment (20) (21). During the next 10 years, he not only taught a large number of courses, but also did graduate work at The University of California at Berkeley and ultimately was awarded his PhD at the University of Illinois in Ecology in 1941 (20). Like Vasco Tanner, he demonstrated great flexibility in teaching courses not directly related to his training, including Human Physiology and Anatomy, Human Physiology, Comparative Anatomy, Histology, Embryology, Heredity and Evolution, etc. (22) (23) (24) (25) (26). He described his experience as follows: *Some of the teachers in the very early days of the university had purchased some equipment that had never been used. I remember, I was asked to teach some laboratory work in physiology and I got to looking around and found a lot of this physiological equipment that had never even been unpacked. In fact, I had no idea what some of it was*

for. I got to looking in some of the old physiology books and found pictures of some of the equipment and learned how it was used. So I got this equipment out and we began to use it... . So about all we had was microscopes, and this physiology equipment. There was also some microscope slides that had been made for embryology and histology that were useable... . Gradually our entomological collections, bird collections, mammal collections and reptile collections began to grow, so that we had more material to work with as time went on. We also began to develop courses in comparative anatomy, embryology, and histology. We began to purchase preserved specimens of cats and fish and various other specimens that were used in the dissection work (21). Lynn was likely more comfortable teaching Ecology, Entomology related courses, Mammalogy, Vertebrate Zoology, Invertebrate Zoology, and Ornithology, which he also taught during this time period. Herbert H. Frost noted memories of Dr. Hayward's teaching style in an oral history recorded in 1983 (19): Lynn Hayward was a completely different type of individual. Lynn was kind of a quiet, low-key person, but very demanding. The only "C" I ever got in Zoology, I got from Lynn Hayward, and that's all I earned. I didn't work hard enough. Lynn was well organized. His lectures were developed in a very fine way. It was easy to take notes from Lynn and he did an excellent job.

On October 16, 1935, the new Brimhall building was dedicated on the upper campus, where Brigham Young University is now located (27). One floor of this building was previously completed in 1918 and was called the Mechanic Arts Building and was utilized for courses in woodwork, blacksmithing, and mechanics. Two additional floors were added and the building was renamed the George H. Brimhall (former President of Brigham Young University) building at the time of the dedication. The Department of Zoology and Entomology was allocated office, classroom, and laboratory space in the new building. Classes were scheduled for the new building in the 1935-1936 academic year, although some classes were still held in the Education Building on lower campus (28). Specimen collections were moved to the new building in 1935 (23). By 1938, most Zoology and Entomology classes were taught in classrooms on the west side of the second floor of the Brimhall Building (29). The environment for teaching was not ideal. The Business School occupied the third floor and held classes in typing. Shop classes were conducted on the first floor. Herbert H. Frost, a student during this time, described the problem as follows: *I can remember going to class and those typewriters just going at it, and you could hear it through the ceiling, and then underneath us on the first floor was the shop. All the shop work was going on. You could hear the saws, and looking back it was kind of a noisy place (19).*

C. Lynn Hayward played an important role in assisting premedical students. He states in an oral history conducted by Herbert H. Frost in 1983: *Throughout most of the history of the department the training of prospective medical students was an important part of the department. Many of the majors, in fact most of the majors in the department were premedical students. During that time, there was about ten years that I was quite active in advising students in this particular part of their work. Our students went to many of the leading medical schools in the country. A good many of them went to George Washington University and many other institutions. So, this was an important part of our activity. During that time I also taught a number of premedical courses including Comparative Anatomy, Embryology, Histology, and Physiology. I came to know the students rather well and was able to help*

them get the necessary applications and things of that kind were important for them to get into medical school. Also, I wrote hundreds of letters of recommendation for the students (21).

The *Great Basin Naturalist* (name changed to *Western North American Naturalist* in 2000) was first published in 1939 with Vasco M. Tanner as the editor (30). The first issue had an introductory note and three original articles by Vasco Tanner, one on the spade foot toad, one on the rubber boa snake (Wilmer Tanner, coauthor), and one on a new species of weevil in Utah. Dr. Tanner also included a note on a horsehair worm found in the urine of a woman and one found in the abdomen of a cricket. This journal provided a venue for publication of many original articles by the faculty of the BYU Department of Zoology and Entomology and by other scientists doing original research on the flora and fauna of the intermountain area.

D. Eldon Beck was the third full-time member of the faculty in the Department of Zoology and Entomology. He obtained his bachelor's and master's degrees from Brigham Young University in Zoology and Entomology and then received his PhD in Entomology at Iowa State University in 1933. He then served as head of the Department of Biology at Dixie College in St. George, Utah until 1938, when he was offered a position at BYU (31). From his undergraduate days, Elden was intensely interested in entomology. As a student, he accompanied Vasco on a six-week-long collecting expedition into Idaho and through western Utah to St. George. His joining the faculty added depth to invertebrate zoology, entomology, field biology, and research expertise (31). During World War II, Elden took a leave of absence from BYU to serve in the Medical Entomological Service in the armed forces. He worked in mosquito control and malaria research in Fort Benning Georgia, Camp Ellis, Illinois, and in Guadalcanal, Solomon Islands. In all these locations, he made extensive collections of insects, amphibians, and reptiles which he shipped back to BYU for the growing specimen collection there (31). In late 1945, he returned to BYU where he taught courses in invertebrate zoology, entomology, human anatomy and physiology, parasitology, comparative anatomy, embryology and histology, among others. Dr. Beck was called upon in 1947 by the Utah County Commission to develop a mosquito control program for Utah County (31). He also obtained funding in 1951 from the National Institutes of Health for a study of ectoparasites (fleas and ticks) of mammals in the western states (31).

The absence of D. Elden Beck during the war years left the remaining faculty members with increased workloads. This was partially compensated by having Dr. Alva J. Johanson from the Chemistry Department teach courses in General Physiology and Nutritional Physiology between 1938 and 1946 (32) (33) .

Henry J. Nicholes was the first *bona fide* physiologist of the department. He received his PhD in Medical Physiology and Biochemistry in 1941 from the University of Wisconsin at Madison (34). He joined the faculty of the Department of Zoology and Entomology in 1946 and began teaching the physiology and anatomy courses (35). He introduced a course in Physiology of Exercise to the curriculum and taught advanced courses in physiology as well as general courses in Animal Biology and Heredity. Dr. Nicholes was heavily involved in making adult education presentations on nutrition, food storage, hormones and enzymes, and sex education.

Five additional faculty members were hired during the tenure of Vasco M. Tanner as department chair: Wilmer W. Tanner in 1949, A. Lester Allen in 1954, and in 1956, Dorald M. Allred, Stephen L. Wood, and Elbert R. Simmons. Wilmer Tanner (PhD, University of Kansas, 1949), Vasco's younger brother, brought expertise in vertebrate zoology and more specifically in herpetology. A. Lester Allen (PhD, University of California at Los Angeles) was trained in genetics and embryology. Dorald Allred (PhD, University of Utah, 1954) was an invertebrate zoologist with expertise in ectoparasites. Stephen L. Wood (PhD, University of Kansas, 1953) was trained as an entomologist with expertise in bark beetle systematics. Elbert R. Simmons (MA, University of Iowa, 1943) was hired to manage the stockrooms, but also taught general zoology courses, biological techniques, and ornithology. He taught biology courses for several years in three different high schools and at Montana State University before coming to BYU. His MA degree was in museum techniques, so he was also involved with display design and construction for the collections. In addition to his MA degree in Iowa, he did graduate work at Cornell and at the University of Utah (36).

When Wilmer Tanner joined the faculty, he was somewhat surprised at his starting salary and at the variety of courses he was expected to teach. He notes: *I arrived on the campus at BYU with a contract in September of 1949. I was interested to note that my first contract was for \$3800. After a PhD, this was \$200 more than I would have received 3 years earlier at Provo High School. I also reminisce with the family occasionally that I entered the teaching profession at Provo High School with a Master's Degree with a salary contract of \$1070. So things have changed in more recent years. I discovered that during my years at Provo High School, I taught basically biology, geology and geography; but, on arriving at BYU, I found that I was expected to be competent in nearly all of the fields which were being taught in the Department of Zoology, and so I became an invertebrate zoologist, an anatomist, a physiologist, a geneticist, a parasitologist, as well as a natural history teacher in fields of herpetology and other vertebrate areas. In other words, my experience perhaps parallels that of most of the early teachers at BYU in which teaching all areas within a department was expected* (37).

Over a period of 33 years, Vasco M. Tanner was able to build the Department of Zoology and Entomology from a one-man operation to a well-functioning department with nine accomplished biologists. Respectable specimen collections were now readily available for teaching and research.

C. Lynn Hayward (1958-1962)

C. Lynn Hayward had been associated with the Department of Zoology and Entomology from its beginning in 1925, first as a student and then as a faculty member beginning in 1931. As a student, and as a faculty member, he had been an integral part of the team that built the department, and that had accumulated the rather extensive specimen collection. He was appointed chair of the department in 1958 to replace his mentor and friend, Vasco M. Tanner. During the time that he served as chair, three additional faculty members were hired: Arthur O. Chapman, Herbert H. Frost, and Joseph R. Murphy. Arthur O. Chapman (PhD, University of Nebraska, 1953) strengthened areas of anatomy, histology, and physiology. Herbert H. Frost (PhD, Cornell University, 1955) taught courses in Zoogeography, Ornithology, Wildlife Conservation, History and Philosophy of Biology, Heredity, and Animal Biology. Dr.

Frost was head of Biology and later, after completing his PhD at Cornell, Chair of the Division of Mathematics and Natural Science at Ricks College before coming to BYU (19). Joseph R. Murphy (PhD, University of Nebraska, 1957) was trained in Ecology (with a special interest in ecology of raptors), but taught Animal Biology and Human Anatomy Courses in addition to Ecology and Environmental Science courses.

C. Lynn Hayward believed all the faculty should be aware of the department budget, which was discussed in weekly faculty meetings on Tuesdays at 10 a.m. The chair requested an annual budget to the administration. In the 1960-1961 academic year, \$4,800 was allocated for non-academic purposes, \$8,000 for Capital Equipment, \$2,400 for Operating Equipment, \$1,100 for Travel, and \$8,000 for supplies for a total of \$24,300, excluding faculty salaries (38).

A. Lester Allen returned from a sabbatical at UCLA in fall of 1961. He had two recommendations for the faculty: 1) Work toward obtaining a new building. 2) Meet with graduate students in an informal setting, similar to the “coffee breaks” at other schools. The October 12, 1961 faculty meeting was devoted to discussion of building requirements. Thursday at 10 a.m. was the time devoted to the informal meeting with graduate students (38).

In 1961, classrooms in the Brimhall Building were no longer adequate for accommodating the increasing numbers of students. The Animal Biology (Zoology 105) classes were scheduled for the large lecture hall on the second floor of the Heber Grant Building (Room 267) (39) (40). Classes with smaller numbers of students and laboratories for most zoology courses were still taught in the Brimhall Building in second and third floor rooms (39). The J. Reuben Clark Library (name later changed to the Harold B. Lee Library) was completed in 1961 (41). As books were transferred to the new library, the Zoological and Botanical specimen collections and displays were moved to the Grant Building (19). Museum displays were created over a period of years in the Grant Building and are listed in part as follows: Cougar, Monkey Skeleton, Whooping Crane, Poison Plants, Mushrooms, Rattlesnakes, Wolverine, Evolution of Fishes, Native Animals of Utah County, Life History of the Opossum, Fox, and Ermine (42). Elbert R. Simmons played a major role in creation and maintenance of the displays.

Aside from chalk, erasers, and blackboards, faculty did not have much in terms of audiovisual equipment. Movie and slide projectors could be scheduled. When the Grant Building rooms began to be utilized, the department requested an additional overhead projector so that one could be kept in the Brimhall Building and one in the Grant Building (38).

A small zoology stockroom, managed first by Elbert Simmons and later by Don Kingsolver with help by student employees, was located on the third floor of the Brimhall Building. Stockroom personnel ordered materials, specimens, and chemicals for the laboratories and assisted in setting up laboratories for the students each week. The Zoology Lab Building (a temporary building on the north side of 800 North near 500 East) was used for Ecology, Ornithology, Ichthyology, Mammalogy, Biological Techniques, and Herpetology labs (39) (40) and for storage of equipment utilized for field trips. Graduate student office space was also located in the Zoology Lab Building.

Field work was always emphasized in the department. Herbert H. Frost commented in an oral history in 1983 (19): *One of the things that I can remember about the department which has come down to this day, and that is that it has been a field oriented department. Courses were not just taught in the lecture hall or in the laboratory, but we spent days and days in the field. Whether it was working on a stream or whether we were looking at an ecological situation on the foothills or out in the desert or wherever it was, we spent a lot of time in the field.*

In 1959, Dorald M. Allred (Principal Investigator) and D. Elden Beck (Associate Investigator) were successful in obtaining a grant from the Atomic Energy Commission for study of the Nevada Test Site. These two scientists supervised specimen collections by many other investigators, resulting in an extensive ecological study yielding over 70 publications and greatly expanding the understanding of the fauna of the Great Basin (31). Additional outside funding (\$49,808) was obtained in 1961 from Texas Gulf Sulphur Company for Joseph R. Murphy and Herbert H. Frost to conduct limnological studies on the Colorado River near Moab for a two year period (38).

D. Elden Beck (1962-1965)

D. Elden Beck was appointed chair of the Department of Zoology and Entomology in February, 1962 (31). Three additional faculty members were hired during the three year period when Dr. Beck was chair: August Jaussi, Lee F. Braithwaite, and Clive D. Jorgensen. August Jaussi (PhD, Oklahoma State University) brought considerable expertise in mammalian, human, and comparative physiology. He greatly expanded the laboratory experiences in physiology and taught endocrinology. Lee Braithwaite (MS, Brigham Young University, 1962; PhD, Brigham Young University, 1970) had expertise in invertebrate zoology and had a particular interest in marine invertebrates. He enhanced the lecture and laboratory experience in the Invertebrate Zoology Course as well as teaching evolution and general biology. He and Dr. Beck produced new and revised editions of an Invertebrate Zoology Lab manual (Beck, D.L. and Braithwaite, L.F. *Invertebrate Zoology Workbook*) used at BYU and at many other institutions (31). Clive D. Jorgensen further strengthened the entomology program both in teaching and research.

The Nevada Test Site funding and study continued with Dr. Beck as the principal investigator and Dorald Allred as coinvestigator during the period 1964 to 1966. An additional grant from the Atomic Energy Commission was obtained by Clive D. Jorgensen and Dorald M. Allred to do studies at the Nevada Test Site (43).

During these years, registration for classes took place in the Smith Fieldhouse. Each department had a table assigned where registration cards were distributed to students desiring to enroll in classes specific to that department. Most members of the faculty were recruited to assist with helping the students register at the beginning of each semester (44). This process was frustrating to both faculty and students. If a student requested a class time that was already full to capacity, it meant other classes had to be juggled to fit the time slots available. This precipitated having to return class cards and picking up different ones until the student's entire schedule was without conflict.

The Animal Biology (Zoology 105) course enrollments increased from 1,391/year in 1960-1961 to 2,131 in the 1962-1963 academic year (45). The scheduling of laboratory times for all these students became almost unmanageable given the limited laboratory space. By 1965, the department had grown to the extent that the laboratories in the Brimhall Building were no longer adequate for the increasing numbers of lab sections required to accommodate all the students. In 1964, 56 lab sections were required for students enrolled in the Animal Biology course (Zoology 105) (46). To meet this need, a new Biology Laboratory Building was built on the southwest corner of 500 East and 800 North. Dr. Rudger Walker, Dean of the College of Biology and Agriculture, visited the Department of Zoology and Entomology faculty meeting, April 20, 1964 to announce the Board of Trustees had approved use of emergency funding to build this laboratory building (43). In fall 1965 the labs were scheduled for the new building and 84 lab sections were required to provide the laboratory experience for the Animal Biology students (47). Three sections were conducted concurrently in three separate lab rooms in the new building (47). A second Zoology Stockroom was located next to the labs. Student employees in the stockroom set up the weekly labs, ordered materials, prepared solutions, and handled changes in registration. Botany labs were conducted in a two separate laboratory rooms in the Biology Laboratory Building. Large enrollment lecture sections of Animal Biology and other courses were held in large lecture halls in the Heber J. Grant Building, the David O. McKay Building, and in the Jesse Knight Building. Labs and lectures for smaller enrollment courses were held in the Brimhall Building.

A standard list of topics was decided upon by the faculty for the Zoology 105 experience: *Zoology as a Science, The Nature of Life and Protoplasm, Cellular Principles, Principles of Genetics, Embryology, Principles of Physiology, Diversity of Animal Life (Classification and Phyla), Principles of Ecology and Zoogeography, and Organic Evolution* (45). The weekly two hour laboratory experience included the following topics: *Kinds and Distribution of Animals, Habitat Sampling, The Microscope and Microscopic Life, Cellular Structure, Cellular Physiology, Mitosis, Gametogenesis and Fertilization, Genetics, Embryogeny, The Grasshopper, and Parasitology* (45). Live paramecia and amoeba cultures were provided the students for the *Microscopic Life* laboratory experience. They also were able to observe the microscopic life of pond water, obtained from the Botany Pond across the street from the lab building. The university provided funding for a microscope for each student. Although students were trained on use of the microscope, microscope slide breakage was widespread and unending. Students were required to pay for slides and laboratory equipment damaged as a result of carelessness.

A. Lester Allen (1965-1970)

A. Lester Allen was appointed chair of the department in February 1965 to replace E. Elden Beck. This was of necessity a period of rapid growth of the department, with eleven new members of the faculty and one staff member hired while Dr. Allen served as chair: Ferron L. Andersen (PhD, Utah State University, 1963), Richard W. Heninger (PhD, Oklahoma State University, 1961), David A. White (PhD, University of Wisconsin, 1967), Clyde L. Pritchett (MS, Brigham Young University, 1962; PhD, University of Wyoming, 1977), Peter A. Nyberg (PhD, Oregon State University, 1967), Vernon J. Tipton (PhD, University of California at Berkeley, 1959), James R. Barnes (MS, Oregon State University, 1967, PhD, Oregon State University, 1972), James L. Farmer (PhD, Brown University, 1966), Duane E. Jeffery (MA,

University of California at Berkeley, 1966; PhD, University of California at Berkeley, 1972), H. Duane Smith (PhD, University of Illinois, Urbana, 1969), Armand T. Whitehead (PhD, University of California at Berkeley, 1969) and instructors Donald E. Kingsolver (48) and Donald Karr (49) .

Several focus areas were strengthened by these hires. Ferron Andersen and Peter Nyberg were parasitologists with focus on human and animal parasitic diseases. Richard Heninger was a physiologist with expertise in endocrinology and whose research centered on thyroid hormones. Armand Whitehead was a comparative physiologist with focus on insect physiology. David White, James Barnes, and Duane Smith were ecologists, specializing in aquatic ecology and wildlife and fish ecology. James Farmer and Duane Jeffery strengthened the areas of genetics, evolution, and molecular biology using the fruit fly as a model organism. Vernon Tipton was an entomologist. Clyde Pritchett contributed expertise in natural history and applied ecology. Donald Kingsolver was hired to manage the Zoology stockrooms and to teach the course in Biological Techniques. The members of the department were saddened by Don's unexpected death following knee surgery in May 1967. Donald Karr was then hired to manage the stockrooms.

Henry J. Nicholes, beginning in 1959, was associated with the Department of Health Education and Safety. He transferred back to the Department of Zoology and Entomology in fall of 1966 to assist in teaching the physiology and anatomy courses (50).

With the demand for additional research labs and teaching labs, the old Page School, located at 1650 North Canyon Road (southwest of the football stadium) was remodeled. Two rooms were utilized for teaching the Human Physiology labs (Zoology 363) and the Mammalian Physiology (Zoology 465) labs. A room on the second floor was utilized for Parasitology labs and for a research lab for Ferron Andersen and Peter Nyberg. Richard Heninger had received funding from the National Institutes of Health for his thyroid hormone research and his research lab and office were located in Page School. This lab was equipped with a small room and cages for housing rodents for research and a second small room for maintaining live frogs for the physiology labs. Other rooms at the Page School were utilized for bacteriology labs and a research lab for James North of the Bacteriology Department. These facilities were utilized for teaching and research beginning in fall 1967 (51) and extending until fall 1970 (52).

The Department of Zoology and Entomology first offered the PhD degree in Zoology and Entomology in 1961 (53). However, it was not until 1969 that the first PhD degrees in Zoology were awarded to Clyde C. Edwards and R. Lynn Speth (54).

Joseph R. Murphy (1970-1975)

When A. Lester Allen was appointed Dean of the College of Biological and Agricultural Sciences in 1970, Joseph R. Murphy was appointed Chair of the Department. The name of the department was changed from the Department of Zoology and Entomology to the Department of Zoology. Faculty members hired during the tenure of Joseph R. Murphy were: Verl P. Allman (MS, Brigham Young University, 1952), William S. Bradshaw (PhD, University of Illinois, 1968), Gerald L. Hayward (MD, University of Utah, 1967), Clayton M. White (PhD, University of Utah, 1968), Gary M. Booth (PhD, University of California at

Riverside), Richard A. Heckman (PhD, Montana State University, 1970), Robert E. Seegmiller (PhD, McGill University, 1970), and R. Ward Rhees (PhD, Colorado State University, 1971). Wade E. Miller (PhD, University of California at Berkeley, 1963) had a joint appointment with Zoology and Geology and taught comparative anatomy and osteology courses in the Department of Zoology during this period.

Verl P. Allman was hired to assist in teaching the Animal Biology course, Natural History courses and to supervise student teaching of students majoring in secondary teaching of biology. William Bradshaw provided needed expertise in cellular and developmental biology. Gerald Hayward and Ward Rhees were needed to assist in teaching anatomy and physiology courses. Gary Booth contributed in entomology, toxicology and environmental biology. Clayton White brought expertise in evolutionary science, ecology, and ornithology, with specific interest in raptor biology research. Richard Heckman strengthened the parasitology group as well as bringing expertise in histology. His research was in fish parasitology. Robert Seegmiller had training and experience in embryology with research expertise in teratology.

With the increased numbers of faculty members and students, it was readily apparent that new facilities were needed for the College of Biological and Agricultural Sciences. The need for a new biology building had been recognized in the early 1960's by faculty members in the department and their aspirations and planning finally materialized. Two buildings were completed and dedicated in 1969-70, the Thomas L. Martin Building and the John A. Widtsoe Building (55). Faculty members provided input for their needs as these buildings were planned and built. Herbert H. Frost was the department representative on the committee for planning the new building. Of this process he comments: *A great deal of time was spent going over the plans and getting input from the various faculty members indicating what their needs would be and what we would be able to accommodate with the new building* (19). Apparently the committee members were provided a maximum square footage to be allowed and they planned accordingly. However, they misunderstood that the total square footage included hallways, elevators, stairways, and bathrooms. Their plans had to be scaled down near the end of the process to conform to the allowable space (19). After some deliberation the decision was made to make the Widtsoe Building a laboratory and office building and to have the Martin building as the classroom building (19).

The John A. Widtsoe Building consisted of nine floors, two of which were underground. It consisted of faculty, department, and college office space, teaching laboratories, seminar rooms, and research laboratories. The Department of Zoology office was located in the northeast corner on the 5th Floor. The Martin Building consisted of a three story building (one floor underground) with four large lecture halls located on the top floor accommodating 254 students each and with smaller classrooms on the ground floor and on the first floor. Walkways connected the two buildings. The fourth floor and the second floor of the Widtsoe Building connected with the top floor and first floor of the Martin Building respectively. The Martin Building classrooms were scheduled for classes in fall 1969 (56). The following fall semester (1970), most laboratory classes were moved from Page School, the Biology Lab Building, the Zoology Lab Building, and the Brimhall Building to the Widtsoe Building (52). Anatomy labs remained in the Brimhall Building (52) until 1974 when they were moved to room 380 of the Widtsoe (57). Wade Miller established a paleontology lab in Page School after other faculty members moved to the new Widtsoe Building. As enrollments increased, Rooms 334 and 340 of the Widtsoe Building were remodeled and used for teaching the anatomy labs. Cadavers were obtained from the University of

Cincinnati, St. Louis University, and University of Utah Medical Schools. At the time, BYU was one of few schools in the nation that utilized cadavers for teaching of undergraduate anatomy courses.

The ninth floor of the Widtsoe Building was designed as an animal care facility with rooms and cages for rats, mice, guinea pigs, rabbits, and dogs. Gerald Richards, an ornithologist who obtained his masters degree in Zoology at BYU, was appointed manager of the facility. For a time, Clayton White housed birds of prey on the roof, attempting to breed Peregrine falcons, an endangered species. A wet room was maintained for holding the live frogs and turtles used for physiology teaching labs. The animal care facility was considered a University facility to be utilized by all those utilizing animals in their research and teaching. It was primarily faculty members in the Departments of Zoology and Microbiology who actually had animals housed there. Exercise Science and Food Science and Nutrition departments had animals housed in the Richards Building and Eyring Science Center respectively.

A stockroom on the first floor of the Widtsoe Building was managed by Don Karr and was stocked with equipment and supplies needed for field trips (i.e. nets, collecting bottles, hip waders, animal traps, etc.) and laboratories. Across from the stockroom was a small workshop, with saws, sanders, drills, etc. for use by the faculty in their teaching and research. Don was very helpful in assisting the faculty with making and installing shelving, manufacturing research and teaching items from wood or plexiglass, and in stocking items needed for student laboratories or research. Most of the chemicals used in research were either ordered directly from suppliers, or were obtained from the Chemistry Central Stockroom in the Nicholes Building, located immediately west of the Widtsoe Building. Other research supplies, such as glassware, cell culture supplies, etc. were also available from the Chemistry Central Stockroom.

The first floor had fresh water and salt water aquaria facing the hallways. Lee Braithwaite and his students maintained the salt water aquaria, which contained lobsters, starfish, sea urchins, sea anemones, horseshoe crabs, spider and cancer crabs, gastropods, feather worms, coral, tube worms, keyhole limpets, and sharks (58). Fresh water aquaria contained native and introduced fish from the streams and lakes of Utah. These aquaria attracted field trip visits from thousands of students from schools in the surrounding area. Faculty members and BYU students also enjoyed taking their children and grandchildren to see the fresh water and marine creatures. In addition to the display aquaria, Lee Braithwaite and students maintained several large research aquaria, including one designed for study marine fauna in tide pools wherein diurnal fluctuations in water level reproduced the natural environment.

The two physiology labs (for 15 sections of Human Physiology and 4 sections of General and Comparative Physiology) were located on the fifth floor. A physiology stockroom was located between the two physiology labs. All labs had microscopes for the students. Three rooms (380, 384, 388) on the third floor of the Widtsoe Building were utilized for teaching the 81 sections of Animal Biology (Zoology 105) labs in fall 1970. Invertebrate Zoology labs (16 sections) were taught in a lab on the first floor (Room 180). Vertebrate Zoology labs (14 sections) were taught in room 340.

This history would not be complete without mention of the walk-in incubator on the fifth floor used for culturing *Drosophila* for genetics laboratory courses and research. This facility, managed by Duane Jeffery, was christened *Fanny Farkle's Fantastic Fly Factory* by his students and a sign to that effect remained above the door of the incubator for many years. Not infrequently, specimens from the *Fly*

Factory expanded their home range from the incubator to the department office and other rooms throughout the building. Armand Whitehead's cockroaches, which he was utilizing for insect neurophysiology studies, also occasionally escaped their living quarters in his lab on the sixth floor.

The new building was not without its problems. The still for producing distilled water was on the 9th Floor. Water was distributed in glass conduits to faucets located in the sinks in each lab. It was thought that the water would remain more pure in glass pipes vs copper or plastic pipes. This was very convenient, but all too frequently, the large hydrostatic pressure would cause the glass pipes to break (often at night when no one was around to report the problem), causing water to shower down on books, records, scientific equipment and instruments in offices and labs on lower floors.

August Jaussi and Richard Heninger worked diligently to provide exceptional laboratory experiences for students enrolled in their physiology courses. Initially, revolving drum kymographs and wax paper coated with smoke residue were utilized to record data from live experiments on frog skeletal muscle and heart muscle contractions. In the Human Physiology labs (Zoology 261), the smoked paper was replaced with lined paper and red ink to record the excursions of the pen. Students performed experiments on acids, bases, and buffers, red and white blood cell counts, measurement of blood pressure and heart sounds, electrocardiography, spirometry, digestion, oxygen consumption of hypothyroid, normal, and hyperthyroid rats, among other. Similar, although more advanced experiments were done in the upper division courses. For the Mammalian Physiology labs (Zoology 465) physiographs and appropriate transducers were utilized to collect the data. The physiographs stood approximately 3 feet high, 4 feet long, and two feet wide and consisted of a moving chart paper wherein three different records (such as blood pressure, electrocardiogram, and respiration) could be collected simultaneously. The culminating experience for physiology students was an experiment on live anesthetized dogs. Dogs were obtained from the Provo City Animal Shelter and were those destined for euthanasia. After dogs were sedated and anesthetized, catheters were inserted into a femoral artery and connected to a pressure transducer for recording of blood pressure. The electrocardiogram was obtained from electrodes inserted subcutaneously on opposite sides of the chest. Rate and depth of respiration was also monitored. Students would be able to observe the effects of the dog breathing pure nitrogen and the effects of carbon dioxide on respiratory and cardiovascular responses. Effects of injection of various drugs, such as epinephrine and atropine were studied. Students were fascinated when they could stop the heart temporarily by electrically stimulating the vagus nerve. They could directly see the effect of the baroreceptors in the carotid sinuses as they clamped the carotid arteries and observed the compensatory rise in heart rate and blood pressure (monitored in the femoral artery) in response. They could simulate the effect of exercise by stimulating the cardiac accelerator nerves. Perhaps the most impressive experience was at the end of the experiment, when the chest was opened to enable students to see the lungs inflate and deflate (in response to the influx and efflux of air from the ventilator) and to observe the heart and precipitous drop in blood pressure as the heart was put into fibrillation by direct electrical stimulation. An electrical defibrillator was utilized to bring the heart out of fibrillation. Students in the Mammalian Physiology course collected and analyzed data from vectorcardiograms, recorded nerve impulses in the isolated frog sciatic nerve, and studied kidney

function in their own bodies by seeing the effect of dehydration or the effect of drinking water or salt solutions on urine output and urine specific gravity, glucose content, and ketone body content.

A demonstration of cardiovascular and respiratory control in the live dog was also presented to the Human Physiology students in the large classrooms of the Martin Building. One of the physiographs had an overhead projector attached to allow all students to see the recording of fluctuation of blood pressure with each heart beat and in response to drugs or nerve stimulation. Rate and depth of respiration were also shown in response to changing content of inspired gases. As each response was observed, Richard Heninger would ask the students to explain the results, thus reinforcing the principles he was teaching. Considering everything that could have gone wrong during these experiments, the demonstrations were amazingly always successful. A videotape was prepared of these experiments so that for many years, students were able to benefit from the demonstrations.

The theory of evolution had been taught as a topic in general biology/zoology courses and comparative anatomy courses beginning early in the history of the department. In addition, Howard Stutz in the Botany Department had offered a graduate course in *Speciation* beginning in 1958 and a graduate course in *Organic Evolution* beginning in 1960 (59) (60). As students were exposed to apparently conflicting ideas in their religion classes vs biology/geology classes regarding the age of the earth, evolutionary principles and the origin of man, discord was spawned between members of the College of Religion faculty and the biological and geological scientists. In the early 1970's Dallin H. Oaks organized a seminar series, including science faculty members and the College of Religion faculty (61). The seminar continued for about 2.5 years with numerous in depth discussions, which served to develop a better understanding of the concept that as members of the Church, we accept all truth, regardless of the origin. Not all faculty members of the College of Religion supported this approach, and in fact some were adamantly opposed and publicly denounced teaching of evolution as well as those who taught it (62). See reference (62) for an in depth treatment of this topic.

When Duane Jeffery interviewed for a position at BYU, he asked one of the Vice Presidents why we did not offer a class in evolution. He was informed that no one had ever proposed it. Duane continued his query, "If I were to come here, we'd probably be suggesting one. How would it be considered?" The vice president said, "The same as any other course (61)." Shortly after he was hired as a Department of Zoology faculty member, Duane Jeffery along with Clayton White proposed a course to be entitled, *Comparative Evolutionary Theory*, Zoology 404. After consideration and approval by the Department, College, University Curriculum Committee, and Board of Trustees, President Harold B. Lee (First Counselor in the First Presidency) communicated the following: *Clearly this course is needed in the curriculum at BYU. Tell those brethren to teach the most demanding and rigorous course of which they are capable. Just don't get on any bandwagon and beat the church with it* (61). Of course, Duane Jeffery and Clayton White had no intention of "beating the church with it," but rather of assisting students in recognizing that belief in the scientific truths of evolutionary theory are compatible with strong and faithful membership in The Church of Jesus Christ of Latter-day Saints. Their hope was not only to provide a more complete curriculum in BYU offerings in the field of Zoology/Biology, but to strengthen faith in the creator and prevent disillusionment experienced by students when encountering

concepts of evolutionary theory which conflicted with their traditional beliefs, based on literal interpretation of the scriptural accounts of the creation.

After commenting in an interview in 2001 on the fragility of the faith of some students, Duane Jeffery made the following observation (61): *So how do we work with students at BYU? We try to work with them in classes, sensitively, openly, honestly, and I try to make clear to them first that the one thing I will not do is lie to them if I can possibly help it. 'If there's a topic of controversy here,' I say, 'I want to make sure that you know everything substantive that's been said on the issue, and I personally don't have any problem at all with divergent statements because it means there's not really a definitive position out there. It's the ones who say there is a position who have to start selecting and choosing their sources.' Then, in addition, we spend a lot of time in the office just talking to people individually, trying to help them through some of these questions."*

The first course in evolution in the Department of Zoology at Brigham Young University was taught by Duane Jeffery and Clayton White in Fall 1971 (63) and it was first listed in the BYU Catalogue in 1972 as Zoology 404, *Comparative Evolutionary Theory* with Duane Jeffery and Clayton White as faculty members responsible for organizing and teaching the course (64). The description was as follows: *A critical study of principles of organic evolution and its impact on modern thought.* This course was not listed as being required of Zoology majors until 1981 (65) when it was thereafter considered to be a capstone course of the Zoology curriculum.

In 1970, the Center for Environmental Studies was organized at BYU (66). Dorald Allred was appointed coordinator with Vernon J. Tipton, David White, and Clive Jorgensen as members of the advisory board. Approximately 40 faculty members and professional personnel from 11 departments and 3 colleges participated. The mission of this center was to *improve the quality of a man's environment through research, training, and public information* (66). The scope of the center was increased to include human health and the name changed to Center for Health and Environmental Studies. Vernon Tipton was then appointed director over health and Dorald Allred was associate director over environmental studies. The Center sponsored such events as an *Endangered Species Symposium* and a *Utah Lake Research Conference* (67). The Center functioned for four years and was disbanded in 1974 (66).

In 1972, as a result of Wade Miller's work, BYU acquired the third largest collection of animal fossils from the LaBrea Tar Pits from the Los Angeles County Museum, where Wade had worked for six years prior to coming to BYU (42).

Several faculty members had been successful in acquiring funding from government sources up to this point, but the administration was not supportive of scientists at BYU becoming overly dependent on government sources for support of their research. The Department of Zoology minutes of a faculty meeting on April 12, 1973 indicate that federal research support to scientists working at BYU would be limited to approximately one million dollars per year and that no grants would be approved for periods longer than three years (68). This policy gradually evolved to the position of strong support for BYU scientists to apply for federal funding.

Clive D. Jorgensen (1975-1981)

Clive D. Jorgensen was appointed chair of the department in 1975. Five new faculty members were hired between 1975 and 1981: Hal L. Black (PhD, University of New Mexico, 1972), Kent Van De Graaff (PhD, Northern Arizona University, 1974), Richard W. Baumann (PhD, University of Utah, 1970), Ronald L. Urry (PhD, Utah State University, 1973), Don B. Bloxham (PhD, Louisiana State University, 1973), and Dennis K. Shiozawa (PhD, University of Minnesota at St. Paul, 1978).

Hal Black taught a variety of courses, including introductory biology, biology of man, Vertebrate and Invertebrate Strategies, Ornithology, Tropical Biology, and Mammalogy. His research was in Indian guard dogs, bat ecology and bear ecology. Kent Van De Graaff brought needed expertise in anatomy. He also focused on preparation of textbooks and teaching materials in anatomy and physiology. His texts were adopted by many universities for their anatomy courses. Richard Bauman taught entomology courses, his research interest being stonefly ecology. Ronald Urry was a physiologist, with research interests and expertise in human reproduction and fertility treatment. Don Bloxham was hired to manage the pre-professional program and courses and he also taught physiology. Dennis Shiozawa brought expertise in aquatic ecology, ichthyology, and systematics of native fishes of the Great Basin.

Clive Jorgensen initiated a few changes in department operating procedures. He announced in a faculty meeting that the graduate council would meet separately from the general faculty meetings. Faculty meetings would be held only when needed and announcements would be posted on a newly installed bulletin board outside the department office (69). He later proposed that generally, faculty members should be spending 55% of their time teaching, 25% doing research, 10% on professional development, 8% on committee work, and 10% administration. As noted, this adds up to more than 100%, implying that 50 hour work weeks should be the norm (70). Criteria were introduced for determination of merit raises. Performance was to be quantitated based on teaching, creativity, administration, BYU loyalty, and professional development (71).

The Bean Museum was completed in 1977 and could now be utilized to house the extensive specimen collections (72) which up to that time had been housed on the 3rd floor of the Brimhall Building and in the Grant Building. In 1970, a committee was formed (Wilmer Tanner, Stan Welsh, and Steve Wood) to explore development of a facility for housing the plant and animal specimens for the university. About this time, Monte L. Bean and his wife Birdie sent a letter to the BYU Development Office inquiring about the possibility of the university providing a place to house their extensive collection of animal specimens, collected by Monte during a lifetime of hunting. The letter was discarded, but salvaged by Wilmer's wife, Helen, who was working as a secretary in the Development Office. Wilmer contacted the Beans and after considerable negotiation, they magnanimously agreed to not only donate the specimens, but also to provide funding for the museum for housing all the BYU plant and animal collections (72). Wilmer Tanner was appointed the first director, with Dorald Allred and Dick Murdoch as assistant directors. The museum was officially opened to the public in the spring of 1978 (72).

In spring of 1979 the Department of Zoology began offering a five-week program for students at the BYU Timpanogos Biological Station (73)(See also BYU Spring Term Class Schedules, 1979-1988, <https://lib.byu.edu/collections/byu-history/>). Students and faculty were housed and fed in Timpanogos Lodge, owned by Brigham Young University, and located near the Sundance Ski Resort. Church services were held on site on Sundays. Students attended lectures and then participated in field experiences to reinforce concepts taught in lecture. This included trapping, marking, and releasing squirrels, collection and processing of aquatic insects, and observation, identification, and classification of birds, mammals, insects, and flora of the study areas. Three or four courses were offered each Spring term on site. Courses taught over the ten year lifespan of the program included Vertebrate and Invertebrate Strategies, Entomology, Fresh Water Biology, Ecology (lecture and lab), and ornithology. The program was limited to about 40 students per year. James Barnes, Richard Baumann, and Kimball Harper (from Botany) were instrumental in launching the program and taught the courses the first year. One of the highlights of the course was that students were given the opportunity to eat some of their specimens. Nymphs and adult stoneflies, mayflies, and caddis flies were collected from the stream and sautéed in butter. Students then dined on their new found delicacies (Reported in Deseret News, 25 June 1981) (73). No account is available indicating the professors joined in the feast.

In the late 1970's and early 1980's Richard Heninger and Ronald Urry performed studies on the effects of cigarette smoke and marijuana smoke on reproductive and hormonal responses in rats (74). Rats were placed in a wire mesh "straight jacket" and were exposed to cigarette or marijuana smoke by use of a specially constructed smoking machine. Special clearance had to be obtained from the DEA and the State of Utah to do the marijuana studies. Cigarettes with a standardized amount of nicotine were utilized in the studies. A special fume hood was utilized to prevent exposing the researchers and students to the fumes.

Other unusual odors were tracked to the anatomy labs. It was common to experience the smell of formaldehyde emitting from the labs, but one day another more pungent odor was detected. Kent Van De Graaff was doing studies on the musculature and locomotion of skunks. While dissecting one of the skunks, he accidentally cut into the scent gland. His mistake was broadcast to all in the building as the invisible fumes poured into the hallways of the Widtsoe Building and into the ventilation system. Other faculty members and students kept their distance until Kent was able to purge the odor from his fingers. The Provo newspaper, the *Provo Herald*, got wind of the story and published a full account of Kent's misfortune (73).

In 1979, the Department of Zoology began offering MS and PhD degrees in Wildlife and Range Resources in addition to degrees in Zoology and Entomology.

Ferron L. Andersen (1981-1984)

Ferron L. Andersen was appointed department chair in 1981 to serve for three years. During this time, three people joined the faculty: William W. Winder (PhD, Brigham Young University, 1971), Jack W.

Sites (PhD Texas A&M University, 1980), and Richard R. Tolman (PhD, Oregon State University, 1969). William Winder was a physiologist with expertise in endocrinology, metabolism, and exercise physiology. Jack Sites brought expertise in evolutionary genetics and systematics. Richard Tolman taught general biology courses and was involved in science teacher training and instruction.

The evolution controversy continued to fester during this period (62). Duane Jeffery was invited to debate evolution with David Fish, a creationist, on the University of Utah Public Television show *Civic Dialogue*. One week later, administration officials met with all the chairs of the College of Biological and Agricultural Sciences and expressed their concerns with making public statements on the topic of evolution. Ferron Andersen, chair of the Department of Zoology, was asked to invite Duane Jeffery to respond in writing, defining “how he could handle matters of science in ways that would be supportive and not additionally inflammatory (62).” Duane concluded his response with the following statement: *We really can’t avoid the topic [evolution] as it is central to our discipline. We sincerely hope and pray that the day may come when we can speak freely without fear of being misunderstood* (62). In August of 1982, William Bradshaw spoke to BYU students on the topic *Our Strange Ambivalence about Science*, emphasizing that science and faith in religion are not enemies. He concluded, *For me, there are no notions in biological science that violate the principles, both spiritual and practical, which I hold dear as a committed Latter-day Saint* (62).

In 1984 the college began cross listing the evolution course as Zoology (Botany, or Microbiology) 475 and the name was changed to *Evolutionary Science* with the description: *Observed organic change and apparent history of life on earth. Study methods, interpreting data, evaluating evidence* (75). Catalogs show the course as being required for Zoology and Botany majors, but as being optional for Microbiology majors.

Richard W. Heninger (1984-1988)

Richard W. Heninger was appointed chair of the Department of Zoology in 1984. The following joined the faculty during the period 1984-1989: Lamont W. Smith (PhD, West Virginia University, 1970) (transferred from the Department of Animal Science to the Department of Zoology), Brian A. Maurer (PhD, University of Arizona, 1984), and R. Paul Evans (PhD, Medical College of Virginia, 1983).

Lamont Smith contributed to teaching of Human Anatomy. Brian Maurer’s contributions were in the areas of ecology theory, terrestrial and rangeland ecology, ecological data analysis, conservation, evolution, and ornithology. Paul Evans strengthened the areas of molecular biology, gene regulation, and development and management of the Genetics and Cell Biology Lab.

In 1986 the Lytle Ranch Preserve was acquired by Brigham Young University (76). This preserve consists of approximately 600 acres and is located in Southwestern Utah, approximately 36 miles west of St. George. The Bean Life Science Museum Website provides a mission statement for the reserve: *The Lytle Ranch Preserve is a remarkable desert laboratory located at the convergence of the Great Basin, Colorado Plateau, and Mojave Desert bio-geographical regions. This unique convergence of life zones endows the Preserve with an unusually rich combination of living communities. The Preserve is dedicated*

to providing students, scientists, and visitors with an opportunity to experience the flora, fauna, and ecological complexities of this living system. Brigham Young University is committed to the care and preservation of this unique natural resource so that future generations can enjoy and learn firsthand about the biological and historical features of the Lytle Ranch Preserve (76). This preserve is managed under the umbrella of the Bean Life Science Museum.

Biological Science Education was added as an option for the MS degree in 1987 (77).

H. Duane Smith (1988-1995)

H. Duane Smith was Chair of the department from 1989 to 1995. The following were hired during his tenure as chair: Marek J. Kaliszewski (PhD, A Mickiewicz University, 1981), Duke S. Rogers (PhD, University of California, Berkeley, 1986), John D. Bell (PhD, University of California, San Diego, 1987), Allan M. Judd (PhD, West Virginia University, 1982), Mark C. Belk (University of Georgia, 1992) and Edwin D. Lephart (University of Texas Southwestern Medical Center, Dallas, 1989).

Marek Kaliszewski's expertise was in acarology and evolution of parasitism. He taught Systematic Zoology and Medical Entomology. He lost his life in an unfortunate automobile accident in October of 1992. Duke Rogers was trained in molecular phylogenetics and evolution of mammals. He taught courses in evolution, systematics, natural history, mammalogy, and vertebrate and invertebrate strategies. John Bell taught courses in physiology, physiology of drug mechanisms, cell biology, and general biology. His research was in membrane biophysics. Allan Judd's expertise was in Endocrinology and Immunoendocrinology. He taught courses in physiology, pathophysiology, and advanced courses in cardiovascular and respiratory physiology. Mark Belk did research in aquatic ecology, focusing on predation and on June Suckers of Utah Lake. He taught courses in ecology and appreciation of nature. Edwin Lephart's research focused on development of polyphenolic molecules for use in treatment of prostate health, baldness, brain health, and skin health. He taught anatomy, physiology, pathophysiology, and reproductive physiology. He was also founder and first director of the Neuroscience Center at BYU.

In the early 1990s President Rex Lee became concerned with having to repetitively respond to student and parent queries on the church's official position on the concept of evolution. He requested that a packet of documents containing official church statements on the topic be placed in the library (61). In 1974, Duane Jeffery published a rather extensive analysis of statements of general authorities of the church on the subject of evolution (78). A shortened version was re-published in 2001 (79). His careful research distinguished opinions expressed in word and writings by general authorities from doctrinal position statements on the topic by the president of the church. His work provided an excellent resource for constructing the packet. Assembly of elements of the packet clearly defined the official position of the church on the topic of evolution. This packet was approved by the BYU Board of Trustees in 1992 (61). The packet was to be distributed to all students who had questions concerning evolution, including students in classes on evolution and other biology classes. This packet was very helpful in informing students (and parents of students) that the church has no official canonized doctrinal position

on age of the earth, the specific methodology utilized in the creation, or on other concepts of evolution (61).

In 1994, 1995, the department was required to undergo a *Self-Study and Strategic Planning Initiative Evaluation* (67). According to the report generated from the study, faculty in the department published 244 peer-reviewed publications, made a total of 211 presentations at regional, national, and international meetings, and attracted external funding of 8 million dollars (including grants from NIH, NSF, and DOE) between 1989 and 1993.

MS and PhD degrees in Molecular Biology were first offered as college wide interdisciplinary programs in 1992 (80). The Human Biology major was first offered in 1992 and was particularly popular among the pre-professional students (80).

Richard R. Tolman (1995-1999)

Richard R. Tolman served as Chair of the department from 1995 to 1999. The following joined the department during that period: David D. Busath (MD, University of Utah, 1978), Randy L. Bennett (PhD, University of Wisconsin, Madison, 1993), Keith A. Crandall (PhD, Washington University, 1993), Michael Whiting (PhD, Cornell University, 1994), Laura C. Bridgewater (PhD, George Washington University, 1995), and James P. Porter (PhD, University of California, San Francisco, 1982).

David Busath graduated from the medical school at the University of Utah and was well-prepared for teaching anatomy and physiology courses. His research included biophysics, molecular modeling, and development of anti-viral drugs. Randy Bennett came prepared to teach molecular biology and genetics. His research interests were in the area of molecular biology of development. Keith Crandall brought expertise in molecular evolution and population genetics. He taught courses in Vertebrate and Invertebrate Strategies, Genetics of Natural Populations, Molecular Evolution, and Research Orientation. Michael Whiting came with expertise in systematic entomology, molecular phylogenetics and evolution. He taught courses in evolutionary science, phylogenetic systematics, and insect classification. Laura Bridgewater was trained in molecular biology, cancer biology, and gene regulation. She taught courses in developmental genetics and molecular biology. James Porter had been teaching physiology at the Medical School at the University of Louisville and was well prepared to teach courses in physiology and pathophysiology. His research was in the area of the neuroendocrinology of blood pressure regulation.

H. Duane Smith was appointed director of the Bean Museum after completing his service as chair of the department (81). He led the efforts to obtain accreditation from the American Association of Museums and from the National Association of Systematic Collections. He spearheaded efforts to expand waterfowl and pheasant collections and to secure initial funding from donors for expansion of the museum.

John D. Bell (1999-2002)

The last chair to serve before reorganization of the College into different departments was John D. Bell, who served from 1999 to 2002. The following new faculty members were hired during that time: C.

Riley Nelson (PhD, Brigham Young University, 1986), Steven L. Peck (PhD, North Carolina State University, 1997), Russell B. Rader (PhD, Colorado State University, 1987), Kent A. Hatch (PhD, University of Wisconsin, 1996), David A. McClellan (PhD, Louisiana State University, 1999), Michael R. Stark (PhD, University of California, Irvine, 1998), Sterling Sudweeks (PhD, University of Utah, 1997), Bruce H. Woolley (PharmD, University of California, 1972) (Transferred from The Department of Food and Nutrition to The Department of Zoology, 2002), and Dixon J. Woodbury (PhD, University of California, Berkeley, 1986).

Riley Nelson taught entomology and Animal Diversity courses. His research focused on systematic entomology and insect distribution and life history. Steven Peck was trained in ecology and did research in evolutionary ecology and ecological modeling. Russell Rader was also an ecologist, specifically focused on aquatic ecology. He taught courses in general biology and limnology. Kent Hatch was trained in physiological ecology using stable isotopes for his research. He taught ecology and biological diversity courses. David McClellan brought expertise in molecular adaptation and evolutionary bioinformatics. He taught the course in evolution. Michael Stark was trained in developmental biology and more specifically in molecular regulation of development of ganglia of the nervous system. He taught human anatomy and developmental biology. Sterling Sudweeks was trained in neurophysiology focusing on characterization of neurotransmitter receptors. He taught the upper division physiology course. Bruce Woolley joined the faculty at BYU in 1977 and transferred to the Department of Zoology from the Department of Food and Nutrition in 2002. He taught general biology courses, parasitology, and the Physiology of Drug Mechanisms course. Dixon Woodbury received his training in Physiology and Biophysics. He taught human physiology and the upper division physiology courses and focused his research on the biophysics and proteins of membrane fusion.

The Neuroscience Center was established at BYU in 1999 under the leadership of Edwin Lephart, who was appointed the first Director. Two colleges, the College of Biological and Agricultural Sciences and the College of Family, Home, and Social Sciences sponsored the Center with the directorship rotating between the two colleges. The Center began offering the B.S. degree in Neuroscience in fall of 2000 (82). The following members of the Zoology Department contributed to teaching and research as initial members of the Neuroscience Center: David D. Busath, Reuben Ward Rhees, Allan M. Judd, Edwin D. Lephart, and James P. Porter. The first degrees in Neuroscience were awarded in Spring and Summer Commencement, 2001 to 17 students (83) and in 2002 to 48 students (84).

In addition to students enrolled as majors in the department, a large number of students were benefited by general education and service courses taught by faculty members of the Department of Zoology. The Animal Biology (Zoology 105) and the Human Anatomy courses became particularly popular as both general education courses and as courses required by other majors, such as Nursing, Exercise Science, and Food and Nutrition. Pre-professional students could select any major, but still found it helpful to enroll in many of our courses in preparation for the specific admissions tests required for consideration for acceptance into medical, dental, chiropractic, optometry or osteopathic schools. As many as 1800 students were enrolled in the anatomy course each year. This placed a stress on department resources, especially in providing meaningful laboratory experiences.

Over a span of several years, the numbers of students enrolled in classes increased to the point that it was no longer feasible to do live animal experiments in the physiology courses. Will Winder, Allen Judd, and John Bell worked with Rob Adams and others of the Instructional Technology office to produce a computer simulation of contraction of single muscle fibers. This program was adopted for use in the Human Physiology course and in the upper division physiology course. Videotapes of the live dog experiments replaced the cardiovascular experiments on live dogs. A computer simulation (*Loligo*) of electrical stimulation of the giant axon of the squid replaced experiments on stimulation of the frog sciatic nerve. Eventually this program would no longer work on the new computers, so it was replaced with a computer simulation of the *Mammalian Neuron* authored by Will Winder and Dave Busath in collaboration with the Instructional Technology department. Chart recorders (Gilson Duograph and Gilson Unigraph) replaced the physiographs and kymographs. These were later replaced with computers coupled with data collection hardware and software. In general, students were not as excited with the computer simulations as with the live animal experiments, but enjoyed collecting data such as blood pressure, electrocardiograms, blood cell counts, and respiratory responses on their own bodies.

Reorganization of the College of Biology and Agriculture, 2002.

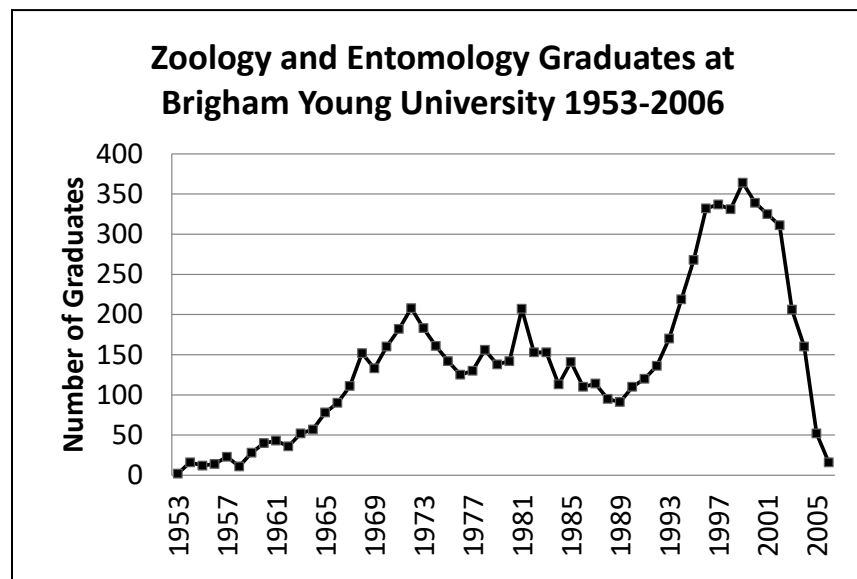
Under the leadership of the Dean, R. Kent Crookston, a committee was organized to propose a reorganization and realignment of departments within the college. The departments prior to this reorganization were as follows: Agronomy and Horticulture, Animal and Veterinary Sciences, Botany and Range Science, Food Science and Nutrition, Microbiology, and Zoology. With the reorganization, the new departments were named Integrative Biology, Microbiology and Molecular Biology, Nutrition, Dietetics, and Food Science, Physiology and Developmental Biology, and Plant and Animal Science (85). Faculty members were invited to associate with the department most closely matching their interests and training. The majority of those in the Department of Zoology (Baumann RW, Belk MC, Black HL, Booth GM, Braithwaite LF, Crandall KA, Hatch KA, Heckmann RA, Jeffery DE, McClellan DA, Nelson CR, Peck SL, Rogers DS, Shiozawa DK, Sites JW, Smith HD, White CM, Whiting M) chose the Department of Integrative Biology (85). The following associated themselves with the Department of Microbiology and Molecular Biology: Bradshaw WS, Bridgewater LC, Kooyman DL, and Evans RP (85). The remaining members of the Department of Zoology (Bell JD, Busath DD, Judd AM, Lephart ED, Rhees RW, Seegmiller RE, Silcox RW, Stark MR, Sudweeks SN, Winder WW, Woodbury DJ, Woolley BH) became part of the newly created Department of Physiology and Developmental Biology (85). David Kooyman later decided to associate with this department. Richard Tolman, who had been serving as Associate Dean, was appointed chair of the Department of Physiology and Developmental Biology during the transition period, after which Ward Rhees was appointed chair.

This was a stressful time for some of the faculty, although most members of the Zoology Faculty adjusted well to the change. Faculty meetings were held in the newly formed departments to determine names and foci. Initially the departments were just called by letters of the alphabet. After these initial meetings a few faculty members decided to switch to different departments.

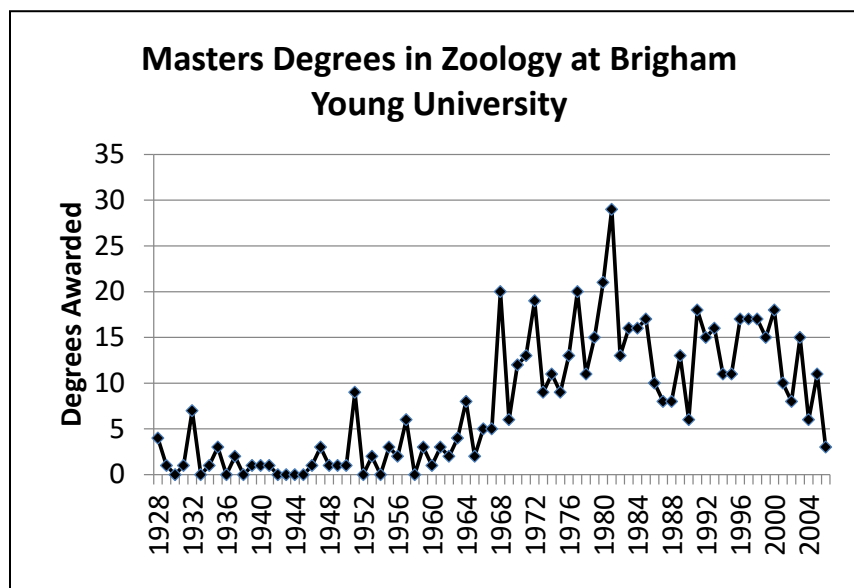
So, thus came to an end in 2002 the 77-year existence of the Department of Zoology and Entomology/Department of Zoology at Brigham Young University.

Summary

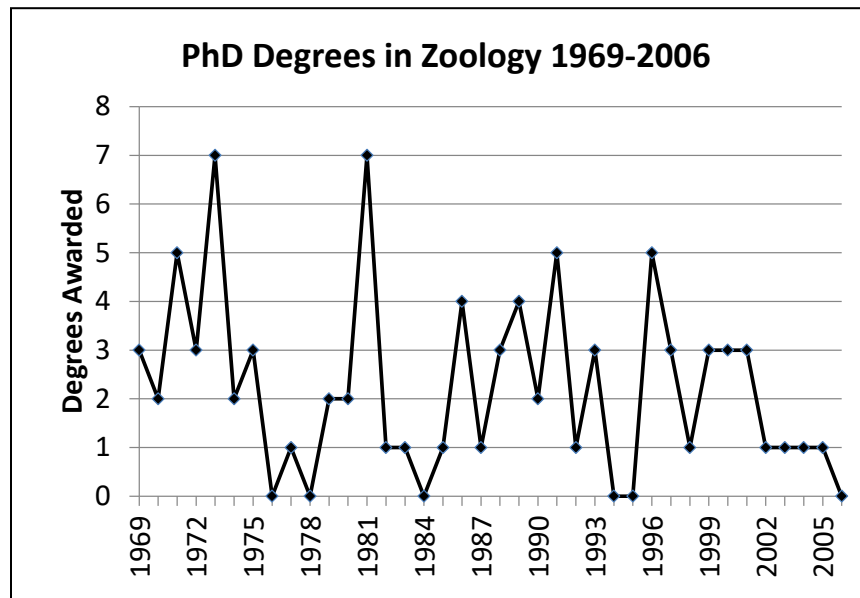
The Department of Zoology and Entomology and the Department of Zoology conferred approximately 7600 bachelor degrees between 1953 and 2006 (Source, Commencement Exercise Programs, 1953-2006) (86). Specific degrees of graduates with bachelor degrees were not specified in the Commencement Exercise Programs prior to 1953.



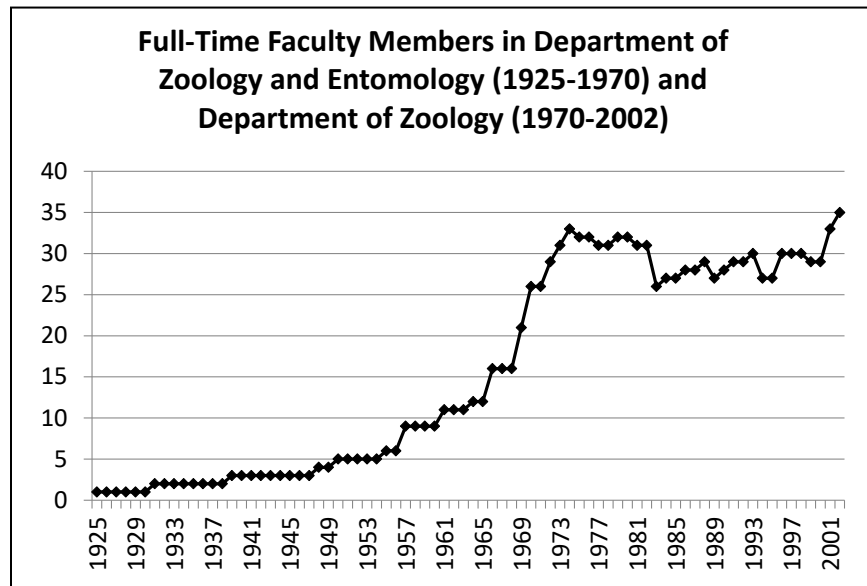
The first Masters Degrees were awarded by the department in 1928. Masters Degrees awarded by the department are shown in the graph below. Approximately 607 Masters Degrees were awarded by the department between 1928 and 2006 as listed in Commencement Exercise Programs (86). This includes degrees in Zoology, Entomology, Fish and Wildlife Management, and Biological Science Education.



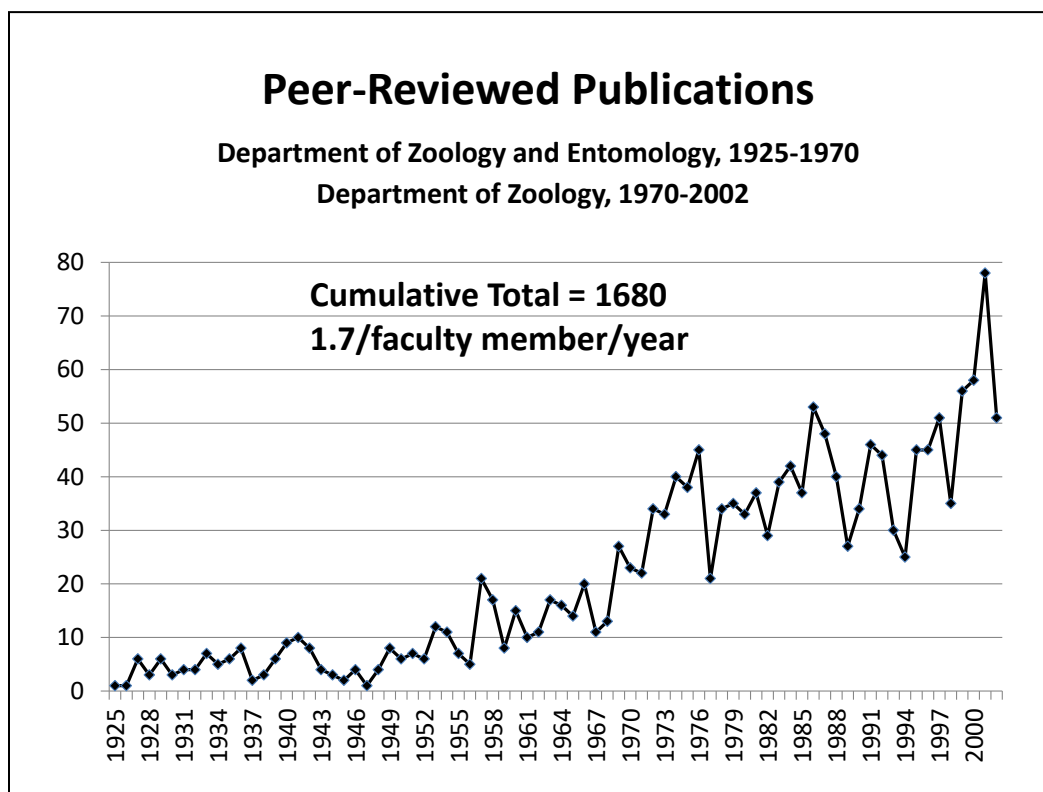
A total of 85 PhD degrees were awarded by the department between 1969 and 2006 as shown in Commencement Exercise Programs (86). This includes degrees in Zoology, Entomology, and Fish and Wildlife Management. A summary of PhD degrees awarded by year is shown below.



The number of full-time faculty members increased in the department from one in 1925 to 35 in 2002. A total of 68 full-time faculty were hired or transferred from other departments between 1925 and 2002 as shown in the BYU Catalogs (86). All but six of the 68 remained with the department until retirement or until reorganization of the college in 2002 when the department was dissolved. A summary of the numbers of faculty members in the department between 1925 and 2002 is shown in the graph below.



Dr. Herbert H. Frost in an interview in 1983 expressed the wish that someone would eventually determine the number of publications by members of the faculty of Department of Zoology and Entomology and the Department of Zoology. The graph below represents a conservative estimate of refereed journal publications by members of the department. The data were compiled from curriculum vitae either submitted by individual faculty members, or when curriculum vitae were not submitted, compiled from publicly available sources, such as Pub Med, Science Citation Index, Biosis, etc. which may not include all publications from individual authors. Only works published during the period of service of each faculty member were included. In the event of multiple authors from the department, the publication was counted only once, not once for each author.



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**MEMORIES OF THE
DEPARTMENT OF ZOOLOGY AND
ENTOMOLOGY**

AND THE

DEPARTMENT OF ZOOLOGY

Contributed by Members of the Faculty

2016

Memories of the Department of Zoology

Ferron L. Andersen

In 1949 I graduated from Blackfoot High School and that fall began as a student at Ricks College in Rexburg, Idaho. At that time, Ricks was a 4-year undergraduate school, but, even though I attended Ricks rather intermittently for 5 years, I never graduated before I left in 1954 for a 2 ½ year LDS mission to Germany. When I returned from my mission in August, 1956, Ricks had reverted to a 2-year school, and I then transferred my undergraduate program to Utah State University in Logan, Utah. After completing my BS degree from USU, I was accepted into an MS program in Zoology at USU, and also subsequently accepted into a doctorate program there. This meant that all 3 degrees would read from Utah State, and as such could potentially be somewhat disadvantageous in my eventual search for post-graduate employment. Because of this situation, my major professor at USU (Dr. Datus M. Hammond) suggested that I complete a year as a research assistant at the College of Veterinary Medicine at the University of Illinois with a former associate of his (Dr. Norman D. Levine) so that I would at least have a partial academic background from another university. That seemed to be a good arrangement and during that period I also completed requirements for an MS degree at the University of Illinois, which indeed gave me another degree from a school other than Utah State. After completing my PhD program in 1963 at USU I was offered a full-time position as an Assistant Professor at the Veterinary College, University of Illinois, so once again our family made the trek back to Illinois. Of note, however, was the fact that my parents and family lived in Idaho and my wife was from Arizona, so we always had an interest in some day returning to one of the western states.

In 1996 I was invited to compete for an opening on the faculty of the Department of Zoology at BYU and to give a seminar on my research at Illinois. I completed that task and was offered a position as an Associate Professor in the fall of 1966. Owing to the fact that I had an active research program underway at the U of I, I asked to defer my transfer to BYU until January of 1967. Since I had not attended BYU as a student I was not well acquainted with BYU, and the only individual I knew was Dr. Herbert Frost who had been my instructor at Ricks College. On my interview visit I spent considerable time with Dr. Frost who mentioned several unique aspects about the university, but overall I felt that it would be a good change for my family and me to once again return to the west. Dr. Frost pointed out to me that historically at BYU the major financial emphasis had been towards teaching needs and not towards research support. Since I was coming from a prestigious research institution at the University of Illinois, I needed to be aware of those challenges.

My first memories of the department proved to be a rather interesting comparison with my position at the University of Illinois. I well remember that at one of the first faculty meetings at BYU one senior faculty member consistently criticized the opinions of a younger faculty member, but then at the end of the meeting the senior faculty member asked the younger colleague for a ride home and everything seemed to be forgotten. I still remember the impression I had from that early occasion.

For another memory I naturally noted that one vote counted the same whether you were a senior faculty member or a “junior” member. It didn’t take me long to learn to appreciate the wisdom and

judgment of Dr. Lynn Hayward, and so for several years I decided that in all voting matters I would wait until I saw how Dr. Hayward voted, and then I would vote with him.

When I first came to BYU my office and teaching laboratory were located in the Brimhall Building. However in a couple of years it was announced that several rooms in the old Page School near the football stadium were to be remodeled, and that my office and laboratory would be moved to that building. While it was definitely inconvenient for students to make the 10-15 minute walk to classes held there, it nevertheless demonstrated to me that the administration was trying to improve our facilities. Our new teaching laboratory at Page School included 24 student desks, 24 new binocular microscopes, and 24 new dissecting microscopes. Also at this time a 2nd faculty member (Dr. Peter A. Nyberg) with a background in parasitology was added to our staff, and soon after we moved to Page School and on the very same day we received notice that (1) the university would fund a special project to permit us to determine what type parasites, if any, were still present in returned missionaries at BYU who had served in Latin American countries, and (2) we would be permitted to purchase a rather expensive (about \$25,000) Zeiss Photomicroscope II to be used in our teaching and research needs in parasitology. As a follow up to those projects, I need to state that the LDS Church soon became aware of our study of parasites in returned missionaries and asked us not to publish any of our findings inasmuch as such information might cause undue anxiety for parents of missionaries called to Latin American countries. On the other hand, the Zeiss Photomicroscope II proved to be an extremely valuable instrument and was successfully used in many future teaching and research projects. It certainly demonstrated to me that the BYU administration had developed a firm commitment to support research efforts.

The next memories I have concerning the department was the move to the new Widtsoe Building (WIDB) located on the main campus area, which indeed was quite an improvement over our facilities at Page School. Unfortunately, the new building was built at the same time new federal regulations were being introduced concerning heating and air conditioning problems, and also the building had been built with several major flaws – such as the distilled water tanks were located on the 9th floor and had been designed after a building at Ricks College which was only 4 stories high. Consequently, the added line pressure led to some major breakages and floods which greatly impacted such faculty members as Dr. Lee Braithwaite whose office was directly under the open catwalk 9 stories above his office.

The WIDB has recently been torn down and replaced by a rather elaborate 5-story building which comes up the hill from the 800 North Street below. I understand, however, that the new building also has several major design problems, so, inasmuch as I don't know all the details nor am I part of the associated history, I'll refrain from any more comments.

Thoughts for the Zoology Department History

Hal L. Black

I came to BYU a bit by default. A biology teacher had left abruptly, and I was job hunting after my return from two years at the University of Zambia. I was hired by the then Indian Education Department to complete the semester teaching three sections of General Biology for non-majors. I then competed for the permanent position that started in the Fall of 1975. I had a dual appointment between Indian Ed. and Zoology; and, for several years, my primary teaching responsibilities remained with Introduction to Biology, with a clientele containing a variety of minority students. These small classes that catered to Native Americans and others were abandoned in the late 1970s, and I was then absorbed into the Zoology Department. In the last eight to ten years, I, along with others, were realigned into a new department—Plant and Wildlife Sciences. My department heads were Clive Jorgensen, Dick Heninger, Ferron Andersen, Duane Smith, Richard Tolman (in Zoology), and Val Anderson and Rick Jellen (in Plant and Wildlife Sciences).

In addition to General Biology for non-majors, I developed a course in Appreciation of Nature for elementary education students and others. With Hal Miller of the Psychology Department, I also team-taught for a few years a Sociobiology class; and then, for several years at the end of my career, I taught Mammalogy and Ornithology.

Clive Jorgensen and I created and team-taught a Tropical Biology course that convened each summer for several years at the Smithsonian Tropical Research Institute on Barro Colorado Island in Panama. This course produced 14 or 15 publications on a variety of topics (see publication list on CV), but with most of the papers dealing with the giant tropical ant, *Paraponera clavata*. This course was later “transferred” to the Hawaiian Islands where year by year and island by island we documented the number of species of invasive ants and their distribution within and between islands. In the last twenty plus years, my research has dealt specifically with the biology, ecology, and behavior of American black bears in Utah.

While great satisfaction came to me as a teacher and scientist, perhaps the greatest satisfaction came from an outreach program where we took students in wildlife and in general biology classes to bear dens every March for over 25 years. There they could see and sometimes touch three-to-four pound 6-week old bear cubs. Scouts, Young Women’s programs, zoo employees, neighbors, friends, family members, and others accompanied my graduate students and me. For a paraplegic girl and for a young BYU disabled student, both BYU players and local firemen assisted in making snow sleds and hand-pushed “chariots” so that they, too, could experience the wonder of hibernation and winter birth in bears. Over 3,000 people have so far accompanied us to dens. The oldest to reach a den was an 83-year-old man, and the youngest was a 7-month-old baby. In all these travels by foot, ATVs, snowmobiles, and 4-wheel-drive trucks, we never experienced an accident. At this writing, I am 78 and still fortunate to be able to follow former graduate students to do den work.

My career allowed me—through teaching, research, and mentoring—to “push back the frontiers of ignorance” in several thousand students—all the time getting paid a decent salary. BYU was good to me and, perhaps, I was good for BYU as well.

BYU – THE INTERVIEW & MY FIRST ‘REAL JOB’

Jack Sites

My TAMU post-doc was guaranteed for two yrs with a possible third year extension, but because I had no way of knowing how likely this was, I began regularly checking job adds in the back of *Science*, and then applying for those for which I thought I was a good fit (except those in very large cities). I don't have written documentation of all of this, but I almost certainly began towards the fall of 1981 and into early 1982. One of those advertised in 1982 was listed as “Vertebrate Zoologist”, in the Department of Zoology, Brigham Young University. I had heard of this university and seen some publications by Dr. Wilmer Tanner (the resident herpetologist), and while leery of a conservative church school, I reasoned that it could not hurt to apply, and so I sent off my standard cover letter (lost?) and my CV. By this point in my academic life I had published 11 papers published or in press, including one in *Science* as a first author (Sites et al., 2009), a couple of others on evolutionary cytogenetic studies (Sites et al. 1979, 1981), as well as the first chapter of my PhD work (Sites & Dixon, 1981), another chapter was accepted by that point (Sites, 1982), and I was working on my final two chapters (Sites, 1983; Sites and Greenbaum 1983). I was also gaining considerable classroom teaching experience, including to two semesters of the majors General Biology course, and an upper level undergraduate class in Chordate Anatomy. These teaching experiences would prove to be a big advantage for the BYU position, but I continued applying for any others jobs for which I felt qualified.

Within a short time of submitting my application to BYU, perhaps within 10 days or so, I received a phone call from a Dr. Ferron Andersen, then chair of the Zoology Dept. He introduced himself, told me that the search committee was very interested in my application, and then asked me if I was really serious about this job. I was caught short by this, but then told him that yes my application was serious and that I would not do this to mislead anyone. He then asked me if I was a Christian, and in shock my mind raced to find the most honest answer I could come up with. I said that we did not regularly attend any church, but that we were both raised in Christian homes (Catholic for me, Methodist for Joanne), and that we were honest, nurtured very solid friendships with people of several other faiths, neither of us had never had any legal problems, and we would be raising a very young daughter the same way. This seemed to be enough, and Dr. Andersen said that he would get back to me when he had more information.

After this I left my office and went home to tell Joanne about this. She was surprised too, but we got out a map to look for Provo, Utah. We found this location, and our next reaction in looking at this map was “Wow, look at all of the national forests and national parks in Utah!”. Given that both of us were avid outdoor recreationists and we were in our sixth year in a state with preciously little public land, the state of Utah looked very exciting. Then we each asked the other if either of us knew any Mormons – this was a non-starter, so we tried to think of a way to

locate a person to talk with about this religion, BYU, and the state of Utah. We came up empty on this but then a few days later Ferron called me again, and gave me the name and phone number of a LDS (“Latter Day Saint”) student enrolled in the TAMU School of Veterinary Medicine. Ferron suggested that I contact this person and arrange for a personal meeting, which I did as soon as we got off of the phone. I don’t remember this young man’s name, but he was a graduate of the BYU Zoology Dept. and extremely helpful in telling me about the department, some of the faculty, various aspects of campus life, expectations of faculty and students, as well as some of the foundational tenets of the LDS faith (which are “out there” relative to the belief systems of most conventional Christian doctrines). I thanked the young man for his time and passed these details on to Joanne that evening when I went home.

Her reaction was similar to mine, but she backed my application as she had all others. By this time I learned that I had been short-listed at three other schools, one of which I remember was a private 4-yr liberal arts college in Memphis, TN (Southwestern Univ.). Ferron called again in early February to invite me for an interview, and told me that the department would also pay for Joanne to accompany me; Hillary was only 7 months old at the time and so there was no cost for her. We were scheduled to land in Salt Lake City early in the afternoon and would be picked up by a Dr. Duane Smith (Zoology faculty member), taken to a local hotel to rest and get organized, and then we would be given a printed itinerary that would permit me to learn the names of some of the Zoology faculty.

I remember Joanne and I packing our ‘heavy winter clothes’ for the trip, which were of course fitted to the Texas climate, and in early Feb. ‘82 landing in SLC and seeing almost a foot of snow on the ground and thinking “We are going to freeze here!”. This semi-panic was ameliorated somewhat by a quick gaze to the east of the SLC airport and seeing the Wasatch Mountains covered with snow too (after we had recently learned to ski in Colorado), and thinking that we might be able to adjust. We were met by Dr. Smith, and I asked him how the department handled teaching evolution, and he told me that it was a senior-level capstone course, and that one semester each of genetics and ecology were prerequisites. My first thought after hearing this was “Wow, BYU is light-years ahead of the whole state of Texas” on this issue.

Dr. Smith dropped us off at our hotel, just two blocks from the main entrance to the campus, and then someone picked us up and took us to the home of another faculty member – Dr. Kent Van de Graaf – for dinner and a social. I learned that Kent was chair of the search committee, and that he regularly taught Human Anatomy, and on an alternate year basis upper-level undergraduate courses in Vertebrate Anatomy and Herpetology; my ears swiveled upon hearing this. The social at the Van de Graaf home was a nice but “subdued” by Texas standards, and the family was large (I counted at least five children), but it did afford me the opportunity to get to know several other faculty members.

I don't remember the breakfast arrangement, but by now word had gotten out that the Sites family was seriously under-dressed for the Utah winter, and so that morning whoever met us brought scarfs, gloves, and hats, and from this point until our departure we were properly clothed. Dr. Anderson said that after breakfast all of us would be picked up by another faculty member and brought to campus. I would be expected to give a seminar on my research to the department, meet with and go to lunch with the search committee, meet one-on-one with selected faculty members, and also with the Dean of the college (Biology and Agriculture at that time), and one of the Academic Vice-Presidents.

My seminar summarized my dissertation research testing various hypotheses derived from models of how chromosomal rearrangements that were "underdominant" upon their origin in the heterozygous might nevertheless become "fixed" by sampling error ("genetic drift") in small isolated populations, then spread geographically and possibly act as barriers to gene flow when this new "chromosome race" came in contact and hybridized with a different chromosome race. This model makes a number of testable predictions, and my three summers of fieldwork collecting and karyotyping lizards in northeastern Mexico had produced sufficient data to test some of these. The seminar seemed to go well and elicited several questions, and then another member of the search committee, Duane Jeffery, brought me to his office for a chat. He was deeply interested in my research, and I learned that he had completed a PhD at UC-Berkeley under the late Dr. Curt Stern(?), and then a post-doc at U-Hawaii-Manoa under Dr. Hampton Carson. So this guy was really into chromosomes, speciation, evolutionary biology, and he maintained what looked to me like a very high volume "fruit-fly factory". He also taught the senior level Evolution class, and again I perked up at hearing this.

After a short visit Dr. Jeffery (DJ hereafter) walked the three of us over to the student center, where we were to have lunch with Ferron and the search committee. Besides Kent & DJ the other committee member that I remember was Dr. Jim Barnes, a freshwater ecologist. We were taken to the Sky Room for a nice lunch, with Joanne & me seated opposite the above three committee members, and Hillary was fussy at this point, so she was being walked around the room by Ferron to be calmed down. We started with a salad, and Joanne cut into a small cherry tomato that burst under pressure and sprayed seeds & juice in a horizontal "machine gun" pattern across the white shirts and ties of the three committee members seated opposite of the two of us. She apologized profusely to everyone and told me later that she thought this may have sunk my candidacy for this job, but at the time all three men got a good laugh about it, and so I was less concerned about this.

After lunch we continued to shuffle around and meet other faculty, and while I don't remember all of the details, I do remember meeting the two raptor biologists, Drs. Joe Murphy and Clayton White, and then visiting the Bean Museum and briefly talking to Dr. Vasco Tanner, who was one of the founders of the Zoology Department, and then his "son" Dr. Wilmer Tanner. I would later learn that these men were brothers(!), even though separated in age by XX yrs; the size and spread

of siblings in these older very large families was something beyond my personal experience, and was simply incomprehensible at first. Wilmer's was a name I knew from the herpetological literature, both due to several of his publications but also his long association with the Herpetologists' League, and its journal *Herpetologica*. We had a most enjoyable chat about lizards, *Sceloporus* in particular, field work in Mexico, and the value of museums and research collections, among other things. I also remember also the three of us meeting with Dr. Bruce Smith, then Dean of the Bio-Ag. College, and near the end of the afternoon we met with Academic Vice-President Dr. Jay Ballif. For whatever reason I did not meet most recent Zoology hire, aquatic ecologist Dr. Dennis Shiozawa, nor a few others in organismal biology, including entomologists Dr. Richard Bauman and Steve Wood.

After a full day we were returned to our hotel, and told that we would be picked up later that evening and taken to dinner by Dr. Duane Smith and his wife Dahnelle. The three of us had some down time, and spent some of this trying to process what we had seen and experienced – I don't know if I can put it all into words – but we both really liked a lot of what we had seen, and also had some reservations. Somewhere along the way Ferron had told me that one of my teaching assignments would likely be the sophomore level Human Anatomy class, which was not something I was terribly excited about, but I could probably also pick up the Comparative Vertebrate Anatomy class, which was a lot closer to my "comfort zone".

The Smiths picked us up and drove up Provo Canyon, which we could not really see in the dark, but we had a reservation in the "Tree Room" at Sundance Resort. This was Robert Redford's "toned down" resort, and we had a very nice dinner, all the while with a light snowfall, and we watched skiers gliding downhill in a soft light. Seeing this scene immediately elicited something like a "hum, well, for outdoor-oriented people such as ourselves, Utah might not be a bad place to start". I don't know if this was a happy circumstance or deliberate planning by the Zoology search committee, but upon reflection, we concluded that: (1) BYU was dedicated to quality teaching (faculty were held accountable especially at the undergraduate level, which I did not mind); (2) there were options for research, and I would have some lab space and a modest start-up package; (3) I would have options to develop a graduate course and perhaps another at either the undergrad/grad level; (4) the undergraduate students were high quality and seemed on average a bit more mature than many I knew either at Austin Peay or Texas A & M; (5) the faculty (28 in Zoology) were extremely cordial and got along well with each other (the exact opposite is not rare in academic environments); (6) BYU had a natural history museum that housed modest to extensive animal and plant collections; and (7) Utah and the western US in general offered absolutely unparalleled opportunities for every conceivable kind of outdoor recreational activity.

Within about a week of returning to College Station, I got a phone call from Ferron, with an offer to start in the fall term of 1982, on an 8-month contract at \$22,000. None of the other three institutions had moved beyond maintaining me on their short lists of candidates, so I accepted the BYU offer.

THE IMPORTANCE OF BRIGHAM YOUNG UNIVERSITY IN MY LIFE – Clayton White.

First of all, I want to express gratitude to Will Winder for starting this project and seeing it through, for the time he has spent digging out details of the department, and the attention he paid to researching the history of its faculty. There is no way, of course, to repay him other than to hope that those who read the material will feel the same gratitude and that future faculty, who probably did not know most of us, will enjoy it also.

As a wild guess I think that about 95-98% of the period I spent at BYU was the most rewarding professional time I had. I could not have asked for better people to work with. I probably did not express enough gratitude to Herb Frost and Clyde Prichett for the aid they so selfishly offered when I asked them to help teach classes for me when I was away. I built great relationships with other faculty and administrators that are today, 7 years after my retirement, still among my most cherished friends. Better said, the people that my wife and I spend the majority of time with are current or former BYU faculty members. I am saddened that more of the faculty, at least those that were present in the 70s and 80s, are not with us to share their personal experiences.

I was fortunate, I think, to arrive at BYU during the time when there were about a dozen faculty and to take part in the early rapid growth of the faculty into 20 or more people. But then I suspect that anyone on the faculty during the early 1970s could say the same thing. It was a unique experience to have the opportunity to blend some of the teachings of the LDS church with secular material that we taught.

Most rewarding was the time I spent with students that had questions, issues, and problems to discuss and felt comfortable asking me my views and opinions. I hope that any help I might have given was indeed a benefit to them. Even today I occasionally get a note or email from a student long forgotten, thanking me for something or another. One student recently was even bold enough to suggest that I and other faculty served as a sort of role model. I do hope that was true and accurate. I have no personal way to assess my impact as a teacher but it is still of some comfort to review back over some of the semester-end teaching evaluations I received, even the critical ones. One can get a sense of the information the students found of value in their lives. I was flattered by one student I had in Vertebrate Zoology that went on to dental school and some 15 years after he left BYU sent me a note. At that time he was teaching anatomy at the medical school, University of Michigan, and had also earned a Ph.D. from UCLA. He mentioned that during a luncheon with colleagues a topic we had discussed in class at BYU came up and that he knew as much of more about the topic than anyone there. That pleases him. I was additionally flattered when he sent me a copy of his dissertation and mentioned in the Introduction

the wonderful instruction he received as an undergraduate; he had named his first son after me – poor kid.

The students also taught me humility. When I was asked questions for which I did not know the answer I would reply that I did not know but would look it up. If I could not find the answer I would have to report back to them that they would need to find out from someone more informed than me. That helped to teach me not to take myself too seriously and to laugh at myself a bit more. The students were good teachers. I especially loved it when I could see students light up when that special contact had been made. Many time I remember asking my class how many believed in the concept of the common ancestor. Only a couple of hands went up. I would then ask how many believed in the Adam and Eve concept of the first human parents—all hands went up. The next question was then of course, “So where did all the variation in humans, skin, hair, stature, languages, etc. come from if they all had one original ancestor?” I could see them put together earlier concepts we had talked about such as; isolation, gene flow, mutations, natural variation, adaptation, small gene pools and so forth. Very satisfying to see students coming to grips with education on a different level than just learning facts to get a grade and then move on.

In an Honors Colloquium I team taught with Ted Lyon, from the Language Department, and Lynn England, from Sociology, entitled “Shaping the Human Mind,” we allowed students to explore the edges of science, literature, social problems, political issues and so forth. I remember Lynn discussing the concept of what constituted “life” and what constituted “death”. He would ask if movement of an organism signaled life and if so did the “swimming,” moving, mammalian sperm, as it wiggled on and on in an effort to find the egg mean life, and perhaps even a spirit? When the thousands of sperm that didn’t make contact with the egg “died,” what did it mean to the “sperm spirits”? The students had great discussion points and I think it helped all of them understand that sometimes there are no adequate answers for all that which we think we truly understand and believe.

As I have “relived” my time at BYU, I encountered a good bit of nostalgia. My thoughts reflected on the many graduate students I have had over the 40 years of teaching and I sat, sometimes for extended periods, trying to recall their futures and whereabouts. It is a trip down memory lane. When there were 5-6 students that together shared the lab on the bottom floor of the Widtsoe Building we all seemed to talk about events and things in common not realizing, I suppose, that our futures would surely diverge. Of the 32 MS students and 13 Ph.D. students three that I know of, as of 2016, have passed away while 14 are teaching, or have taught, at the college or university level in Brazil, South Africa, New York, West Virginia, Wisconsin, Illinois, Oklahoma, Wyoming, California, Idaho, Colorado, Arizona, and Utah. One went on to Law School. Some 10 or so went to work for State or Federal Wildlife agencies. One became the environmental advisor for the Sheikh of Dubai in the UAE. Some 4-5 went into consulting firms working of environmental issues. Most of the women (8) married although one

had a very contentious divorce while working in the Marshall Islands. So she traveled the world for a year or so after her divorce, and settled into a life more or less along the Hindu spiritual path. It would be great fun to have a reunion with all of them and hear each tell stories of their lives.

The general university faculty helped me, because of the comradeship they gave, understand the magnitude of responsibility that each of us had towards the students, their well-being, their parents, and the spiritual and academic aspects of their lives. For all of this I am grateful. Especially for what I learned from faculty like Morris Petersen and Ken Hamblin from Geology, Doug Tobler from History, Jim Christianson from Religion (I first met Jim when we were at Univ. of Kansas together and went to deliver excommunication papers to former church members), Kimball Harper (who had also given me advice when he was faculty at the U of U) and Bill Hess, both from Botany—the list goes on and on but I guess you get the eclectic nature of the faculty that I owe much too.

I valued the fact that the department administration thought that outside projects were valuable enough to the university and department to help in such projects by facilitating time and often some funds for the work. My experience at other universities suggested to me that there was not the comradeship among and between faculty that existed at BYU. I did not see the petty competition among faculty at BYU that took place elsewhere. I am sure that some existed but certainly it was not aggressive and overt.

In the history that Will has written he has effectively, and in a professional way, given information relating to his memories that we all could duplicate. I won't. But, at the suggestion of some of the faculty I will diverge a bit to bring up my early experiences at getting hired and the first couple of years at BYU. I hope you find them of some fun and can laugh at them as I now do.

I was a Salt Lake City boy in my teen-age years and because of the competition between the U of U and BYU I had only been to BYU once during my high school and college years. My brother took his MS degree at BYU and I visited him once in the old WW II barracks that served as housing at the east side of campus. I had been working on a research project in Alaska funded by the U.S. Fish and Wildlife Service and NSF. I had barely started graduate school. The work had its genesis from a conference held in 1965 at U of Wisconsin, Madison, and to which I had been invited as a participant because of work on falcons I had done in earlier years on the North Slope of Arctic Alaska. Of the 63 invited participants, the vast majority now have passed on, a large number were from the UK, other parts of Europe, Africa and elsewhere so I was of course intimidated and flattered to have been invited. This was the era when environmental contaminants, particularly industrial chemicals, were suspected of having harmed top

predators in the ecosystem. Some five species of birds in North America and addition species in other parts of the Northern Hemisphere had been affected. But there was no empirical evidence from North America as to exactly what was causing the problem of declining population numbers. Based on the work we did in 1965-66 we had a published paper suggesting the culprits. A friend of mine, Gerald Richards, was a graduate student at BYU and worked with Clive Jorgensen and Dorald Allred in their Nevada study and suggested to Clive that I come to Provo to give a seminar. I was invited; I came to Provo, and had a most enjoyable time.

Well then, three years later I got a call for the Zoology and Entomology Department Chair asking if was interested in employment at BYU. I already had two other offers for employment and a research fellowship and instructorship waiting for me at Cornell if I wanted it. At any rate I thought I would give it a try so asked the Chair what I should give a seminar on. He replied that they had already heard me, even though it was at least three years ago, so no need to give one. I went to BYU. The interview was attended by about 9-10 of the faculty. Can't remember all the people that were there. The interview was held in the Brimhall Bldg. Excuse me now, but I stood there for nearly an hour fielding questions they had over an array of issues and scenarios. It was, as Bill Bradshaw stated about his interview in the same time frame, like an inquisition. I was then asked if I had any questions. I had remembered that when a university wanted to entice an athlete the university always told that person what perks he/she would receive by coming there. Seemed to me that the same sort of rationale would apply to a faculty seeking a position. So in my youth I asked the same sort of question; "What does the university offer me by coming here?" Other interviews I had at other universities had always mentioned the perks by coming there. I would have been satisfied with, "An office with a view of the mountains out a large window." Nothing was said. You could have heard a pin drop. Since some faculty have passed on I can mention that Lester Allen's face took on a bright red color, Dorald Allred was bright red, Joe Murphy turned sort of a pink color as was Herbert Frost. After some 5-6 seconds the silence and tension was broken by Clive Jorgensen laughing. I was later told by Herb that many of the faculty there more or less viewed their positions as sort of a mission and for me to not have the same opinion was a bit offensive. I had already served two missions, a foreign one and a regional (among Hispanics in the Salt Lake valley) mission and I was searching for a faculty position not another mission. Needless to say I was not offered the positions. I went on to Cornell and after some time I was later hired so won't bore you with more.

.And, lastly, I had some uncomfortable encounter with two of the faculty that became, or were, Associate Deans. Early in my tenure at the university a meeting was held in the Dean's conference room concerning the fate of the Desert Range Experiential Station in south-western Utah managed by the Forest Service. The Service wanted to know if the faculty had any research that could be carried out there. I had one student that fit the bill. Then Ferron suggested that it would be a nice place to work with the parasite that had a life cycle going from sheep to dogs and into humans. The faculty member sitting next to me said that if we got rid of the dogs, in this case coyote, that could break the cycle. In my innocence I simply remarked, sort under my breath, that if we got rid of the sheep we could

accomplish the same thing. After the meeting the faculty sitting next to me jumped up and said to me in an angry voice, "Do you know who I am?" I replied, "No sir I do not." "I am Max Wallentine." Not knowing anything about him all I could say was, "And..." He stomped away never really befriending me thereafter. A fitting present given to Max at his retirement by Jerran Flinders and Jack Brotherson, of the Botany Department, was a tanned coyote hide. Many years later another of the Associate Deans made a requirement that all theses and dissertations were to be read by him before submitting them. He mentioned that one of my students dissertation was not up to "snuff" for whatever the reason. I mentioned to him that the student had already broken the dissertation into two parts; one was in press as a paper in a leading North American journal and the other had been accepted for publication. Things did not go as well as hoped between us thereafter.

I must repeat my opening statement that for the 40 years I worked at BYU I could not have asked for a better job nor worked with a more congenial and enjoyable faculty. I thank all of you for that.

Memories of the Department of Zoology and Entomology and Department of Zoology

William W. Winder

As I began the task of putting together a history of the department, I realized I had been personally acquainted with all of the 68 full-time faculty members who had been associated with the Department of Zoology and Entomology and the Department of Zoology. My earliest recollections of the department are from my first year at BYU as a student in 1960-61. I was majoring in accounting at the time I first enrolled at BYU, but needed a general education course in biology. I had a very excellent Biology teacher in High School (John Blazzard, a student of Vasco Tanner) who helped me develop a deep interest in the subject. I was able to test out of the beginning Zoology course and enrolled in a Heredity class taught by Herb Frost. I soon discovered that it was a mistake to bypass the beginning course and was left struggling to master the subject matter. Dr. Frost was a small man with excellent teaching skills. He had previously served as a mission president. He used the blackboard extensively. We were crammed into room 250 on the second floor of the Brimhall Building. There was hardly room between the student desks to allow entrance. We learned quickly, it was not good to be late to Dr. Frost's class. The terminology was new to me: adenine, guanine, thymine, cytosine, and uridine. Although we had been introduced to DNA and RNA in my high school class, we had not studied it in detail. I did enjoy the class, but did not do well when it came to assignment of grades.

Following my mission to South Africa, I returned to BYU in 1964 to pursue my interest in Biology. I enrolled in a course in Animal Biology from Elbert Simmons. The class met on the second floor of the Grant Building in a large assembly hall. At the time I worked part-time in the Zoology Stockroom (working for \$1.00/hr) and Brother Simmons was my boss. I wanted to be certain I did well in his course, so I carefully read the book and made an outline of important concepts. I attended lecture and made good notes. I made a presentation in lecture on frog muscle contraction to introduce the muscle contraction section of the course. I was fascinated with the lab experience, especially with being able to observe amoebae, paramecia and other tiny critters move through the field of the microscope. I remember taking a lab exam at 1 p.m. and then rushing to the Salt Lake Temple in time to be married later that Friday afternoon on March 20, 1964.

My new bride, Linda, and I traveled back to her home in New Jersey for a reception the summer of 1964. I planned to work there for the summer and return in the fall, but after an unsuccessful attempt at being a shoe salesman, we returned to Provo. I worked for Vasco Tanner for a short time replacing formalin in the fish specimen bottles. He was a very kind man and was patient with my mistakes in classification of the specimens. After a few days working with Dr. Tanner, I was hired again to work in the Zoology Stockroom with Joe Merino on the third floor of the Brimhall Building. We would order large barrels of preserved frogs for the labs. When we opened one of these barrels, we found a piece of foam rubber gasket on top of the frogs. We took a marker and added two eyes to the gasket and then took it to a member of the faculty who taught the parasitology course. We asked him if he knew what kind of critter we had found in with the frogs. He said he didn't know for sure, but thought it was some kind of flat worm. Joe and I had a good chuckle over that one.

Joe and I would make solutions for the various labs. One day I picked up some sodium hydroxide pellets with my bare hands. A few minutes later, I noticed the skin on my hands was turning white and blistering, being eaten away by the strong base. Terrified, I ran down to Les Allen, the department chair, to ask him what to do. He seemed quite amused with my foolish mistake, but told me to go rinse my hands in water. I was relieved to be able to prevent my hands from being entirely digested. I only made that mistake once.

We had a still in the stockroom for providing distilled water for all the labs. The still had to be cleaned of calcium carbonate deposits periodically with hydrochloric acid. I learned from experience to add acid to water rather than water to concentrated hydrochloric acid.

The Biology Lab building on 800 North 500 East also had a stockroom where we worked setting up the labs for the Animal Biology labs each week. Due to the large number of lab sections, we set up three rooms to accommodate the large numbers of students. During the first few weeks of each semester, we also signed the add and drop cards for students wanting to change lab sections. We dealt with many frustrated students who had difficulty finding an open lab to fit their schedule.

D. Elden Beck was our professor for the Invertebrate Zoology Course in Fall of 1964. We met in Room 167 of the McKay Building, which accommodated about 200 students. Despite the large size of the class, Dr. Beck believed in student participation. He took delight in strolling up and down the aisles, stopping periodically and selecting a student to answer his questions by pointing his finger. He was department chair at the time and we were all intimidated with this approach. He certainly captured our attention and no one would be caught snoozing during his lectures.

I was fortunate to take two physiology courses from August Jaussi. Initially, I planned to become a high school biology teacher, so I completed the Human Physiology Course. Later, I decided to work toward a graduate degree, so I completed the upper division Animal Physiology. August was an exceptional teacher who was able to explain the complex processes of the body in meaningful and understandable ways. He encouraged questions and class participation. He asked questions that helped us develop a curiosity about how the different organ systems worked together to maintain homeostasis. It was very apparent he had a deep reverence for the Creator, often asking how all this could have come about by chance.

I enjoyed classes in Histology and Cell Biology from Art Chapman. He had collected and prepared extensive sets of slides of all the tissues of the body and had a set for each student. We were assigned a microscope and spent hours learning to identify unique features of each tissue. His lab exams were particularly challenging as we would place pointers on specific cells in each tissue for identification under the microscope.

The summer of 1965 I enrolled in three Zoology courses, Ornithology, Vertebrate Zoology, and Vertebrate Embryology. The Ornithology course was taught by Elbert Simmons. We embarked on many early morning field trips to observe the bird species in Utah Valley. I especially enjoyed visiting the marshes around Utah Lake to observe the red wing and yellow wing blackbirds and experience the beauty of their songs. Lynn Hayward taught the Vertebrate Zoology course. Dr. Hayward was

exceptionally knowledgeable. He had a low key teaching style that made us all comfortable in his class. Les Allen taught the Vertebrate Embryology course. He was a very intelligent, well-read person who taught spontaneously without notes. He made elaborate drawings with colored chalk to help us understand the different stages of development. In fact he would often draw or write on the board with one hand while erasing with the other, making note taking a challenge. At the end of the semester, he said, "I suppose you would like me to give you some fatherly advice on how to prepare for the final exam." "Study!"

I took Ecology and Aquatic Ecology from Joe Murphy. He was another brilliant professor who taught without notes. His lectures were more like a sit down chat rather than something more formal. I especially enjoyed the field trips to observe the ecological communities and biomes of the mountains and valleys of Utah.

I very much enjoyed taking an Entomology course from Clive Jorgensen. It was very apparent he had exceptional firsthand experience doing research in entomology. I enjoyed doing a term paper on ecdysone, the insect molting hormone. I also liked the course in Parasitology, taught by Donald Allred. His teaching style was formal lecture, which he taught from an elevated podium in the lecture hall on the second floor of the Grant Building. I came away from that course committed to only eating well-done meat and to being very cautious about purifying water from the mountain lakes and streams. I recognized that my intestinal discomfort experienced when I was a youth was probably due to Giardia in the water I freely drank from the crystal clear streams in the mountains.

During my undergraduate program, I was able to become well-acquainted with many of the professors. I recognized that each had worked very hard in traversing graduate school and paying the price needed to qualify for teaching at the university level. I did not consider myself as one specially endowed with intelligence, but by exerting my best efforts, I was able to perform well in difficult classes. Gradually, I developed the confidence needed to pursue my studies beyond the bachelors degree. Initially, I was leaning toward invertebrate zoology as an area of focus. I loved taking the Advanced Invertebrate Zoology course from Lee Braithwaite. He also was a master at spontaneously creating elaborate colored chalk drawings of the invertebrate organisms we were studying. Lee maintained a few salt water aquaria on the third floor of the Brimhall Building with starfish, sea anemones, and crabs. I was fascinated with these creatures. One summer, after having us certify for scuba diving in the Richard's Building pool, Lee organized an extended field trip to Puerto Peñasco on the north end of the Gulf of California in Mexico. We piled in one of the University vans and drove all the way in one day. Dave White accompanied us and provided a running commentary of the desert flora and fauna along the roadside. At that time, Puerto Peñasco was undeveloped. It consisted of a small fishing port with a few homes and only one gas station. We purchased fresh fish and enjoyed a cookout on the beach where we camped and enjoyed swimming with the scuba gear. The water was a bit murky, so we did not see many sea creatures, but it was overall a very memorable trip.

For my PhD work, I was considering doing a study of the planarian worms of Little Deer Creek up Provo Canyon and went there more than once to collect these little creatures from the underside of rocks in the running water for the invertebrate zoology labs. During that year, I received a grant from NASA to

do my doctoral studies. I took two endocrinology classes from Dick Heninger, a new faculty member. I came to the realization that I really enjoyed physiology and endocrinology and decided to pursue my PhD with Dr. Heninger as my advisor. It seemed to me at the time that a PhD project in physiology was a better fit for the NASA funding, but it was with mixed emotions that I transferred my focus from invertebrate zoology to physiology.

In the experimental endocrinology course, we performed surgery on rats to determine effects of hormone deficiencies on the rats and mice. We performed adrenalectomies, gonadectomies, thyroidectomies, parathyroidectomies, and hypophysectomies. We each were required to demonstrate to Dr. Heninger our proficiency in performing the surgeries. When I was demonstrating the thyroidectomy, I was successful in removing the gland, but when I finished, Dr. Heninger said, "You did a good job with the thyroidectomy, but the rat is dead." I had failed to monitor the depth of ether anesthesia. I was much more careful after that embarrassing experience. By the way, I utilized several of these surgical procedures learned in this class on many occasions throughout my research career.

The ether anesthesia was a challenge in other ways. After a day working with ether, I would return home and Linda would ask, "What is that smell on your breath?" Apparently I had inhaled some of the ether, which takes quite a long time to be purged from the body. One day Dr. Heninger was demonstrating a surgery for us and used electrocautery to stop some bleeding. Unfortunately, the spark from the electrocautery probe ignited the ether, which produced a small explosion right in his face. He was not badly hurt, aside from singed eyebrows, and continued on with the procedure.

Dick Heninger had developed a method for determining the concentrations of thyroid hormones, their precursors, and metabolites in thyroid gland and other tissues. He would feed rats iodine-deficient food containing radioactive iodide for several weeks to allow equilibration of the radioactive iodine with iodine-containing compounds of the body. Tissues could then be extracted and subjected to chromatography to determine concentrations of these iodine-containing compounds. His research was funded by the National Institutes of Health. My study involved determining the effects of exercise on tissue thyroid hormone concentrations and metabolism. I have always appreciated Dick's willingness to turn me loose in the lab to plan, develop, and perform my experiments. He was always available for questions, but it was a great learning experience to have to solve the everyday challenges of doing original research. Most of my research took place in a remodeled room in Page School, which was located southwest of the football stadium. We had two chromatographic scanners for detection of the radioactive iodine of compounds on the paper chromatograms of the tissue extracts. It was a challenge to avoid spreading radioactivity all over the lab as we were not only feeding the rats radioactive iodide in their food, but were processing radioactive tissue extracts. When it came time to do the statistical analysis of the data, we had an old mechanical calculator that would chug along making clicking sounds for a few minutes before printing out the results of the Student's t test or analysis of variance.

Dick Heninger arranged a sabbatical in 1969, leaving a need for someone to teach Human Physiology one semester. I was offered the opportunity. I taught a class of about 200 students in the large lecture hall on the second floor of the McKay Building. I was literally just one day ahead of the students in my preparations. I grew a mustache to make me look a little older, but I don't think that fooled the

students. They learned quickly I was a novice teacher. That was a very busy and stressful semester, but was one of the most valuable experiences of my graduate program. I gained a great appreciation for all my former teachers that semester and also learned a great deal of physiology.

We were excited in 1970 to move to a spacious lab in the newly completed Widtsoe Building. Not only were the research labs state of the art, but an animal care facility was built on the 9th floor for housing research animals and animals for the teaching labs. Teaching labs were spacious and well-equipped. At the time, PhD students who obtained their undergraduate degree at BYU were required to go to another university and do research for a summer. I was very interested in mitochondria and ran across a paper by John O. Holloszy showing that mitochondria increased in muscle in response to exercise training. I had learned in my Endocrinology class that thyroid hormones also regulate the number of mitochondria in tissue. I arranged to go to St. Louis for the summer of 1970 to work with Dr. Holloszy in the Department of Preventive Medicine at Washington University School of Medicine. After returning to BYU that fall, I was able to pass my exams and complete my dissertation, graduating in 1971 with my PhD. On graduation day, I walked into Dean A. Lester Allen's office and told him I would like to be considered for a faculty position at BYU. He kindly told me to go out and find a job and settle down like I was going to stay there permanently. He said, "If we need you, we'll call you."

After completion of my degree, we moved to St. Louis for post-doctoral training with John O. Holloszy at Washington University School of Medicine, studying biochemistry and metabolism in skeletal muscle. We completed several studies on the effect of thyroid hormones on muscle mitochondria, following up on our joint interest. I also did some work on effect of endurance training on capacity of muscle to utilize ketone bodies. After I had been in St. Louis for about five years, I became aware that a faculty position was open in the Department of Zoology at BYU. I immediately applied for the position. A few weeks later I received a short note from Clive Jorgensen, the department chair, which read, "In our prioritizing, you were not considered one of the top candidates." Ron Urry was hired for the position. I was completely devastated, thinking that was probably my last chance to return to BYU. However, in hindsight, this was the best thing that could have happened to me at that stage in my career. During this time I accumulated a number of publications and obtained a career development award and my first research grant from NIH. I also became acquainted with the scientists in the United States and other countries who were working in my area of research interest. These professional relationships opened many opportunities later in my research career.

I remained in St. Louis for a total of eight years and then moved to the University of South Dakota Medical School in Vermillion, South Dakota. I was able to sit in on the medical physiology course three years in succession and to teach review sessions on each topic as well as to teach the endocrinology section of the courses. We collaborated closely with the physicians associated with the medical school for clinical correlation lectures. My understanding of physiology and pathophysiology was cultivated during this time. I also collaborated with Joe Welty, the head of Physiology, in preparing videotapes of live dog surgery and showing cardiovascular regulation in the dog, similar to what we did at BYU. I was also able to continue my research and maintain my NIH grants. I enjoyed working with the medical and graduate students.

After I had been in South Dakota for almost 3 years, I received a call from Dick Heninger informing me of an open position in the department. He invited me to apply. I sent in my application and waited for a reply. The Chair of the Department of Physiology and Pharmacology at the University of South Dakota Medical School had resigned and I was being considered for that position as well. I communicated with Ward Rhees, the chair of the search committee, telling him of my situation. After what seemed to be a very long delay, I received an invitation to come for a seminar and for interviews with members of the department, the college administration, Presidents Holland, Ballif, and Butler, and Elder Hales. After another delay, I received the offer letter. That was one of the most exciting days of my life. My goal of returning to teach and to do research at BYU was finally realized, after being away 11 years.

Returning to BYU was like going to heaven. Faculty had privileges I did not have as a student. I could now park in the "A" faculty lots. When I attended my first faculty meeting, I was so impressed that the meeting began with prayer. I loved attending the weekly Devotionals where general authorities, distinguished faculty and other exceptional guests spoke. It was nice to have full access to the basketball courts and swimming pool of the Richards Building for our family. It was great to be able to attend the BYU football and basketball games and to hear the crowds sing the BYU fight song.

I was assigned to teach the Endocrine Courses and the Human Physiology Course. At first, I used the blackboard, 35 mm slides, and overhead transparencies for teaching. I prepared a set of lecture notes for the students. I was always intimidated by the exceptional students in the BYU classes. They were highly motivated and well-prepared. I think I gradually became a better teacher because of the quality of the students. Over time, I became converted to the value of the Socratic approach to teaching. I adopted Dr. Beck's approach of walking up and down the aisles in the large lecture rooms in the Martin Building, stopping unexpectedly to ask questions. Students sitting on the back row were not insulated from the questions. I detested the glossy-eyed looks of students when they were bored or when they were not grasping the material. It was my responsibility to somehow keep the students engaged and participating in the learning process. Preparations for the endocrine courses were less stressful, as I had been teaching endocrinology to the medical students in South Dakota for three years. I particularly enjoyed teaching the Experimental Endocrinology course. In this course, with a small group of students, we designed actual experiments, treated the rats, performed the assays, analyzed the data, and prepared manuscripts for submission for publication. Each time we were able to publish our results in professional journals.

When Microsoft first developed Power Point, we immediately saw the value of this new technology as a teaching tool. I shifted from using overhead transparencies to Power Point presentations. This was not an easy task. I estimated I spent 15 hours on development of the Power Point slides for each lecture. It required finding appropriate illustrations as well as developing the logical sequence in presentation of each concept. I think adoption of this technology made us all better teachers. We also produced power point presentations for introducing physiology laboratory experiments, so the presentation could be streamlined and standardized among the several lab instructors.

From its inception, the department developed strengths in the areas of entomology, systematics and ecology. Cell biology, anatomy, and physiology were other areas of emphasis, particularly since many of

our majors were preparing to go to medical school, dental school, chiropractic school, and optometry school. Large numbers of students were enrolling in the anatomy and physiology courses to fulfill general education requirements or to fulfill requirements in other majors, such as Exercise Science, Pre-nursing, or food and nutrition. Hence, some of the faculty meetings devoted to determination of hiring priorities generated lively discussions. There were strong differences of opinion regarding which areas of emphasis within the department should be maintained or strengthened with the hiring of new faculty members. However, discussions were for the most part respectful and the different factions compromised on several occasions for the good of the department. For example, John Bell and Allan Judd were both interviewed for the same position. When the faculty realized that both were exceptional candidates, we decided to modify the order of hiring priorities and hire both candidates. That turned out to be a very good decision that had a long-term positive outcome. Over the years, both have made major contributions to the department, college, and university. Some members of the department taught service courses not directly related to their field. For example, Joe Murphy, Monte Smith, and Bob Seegmiller taught the anatomy course on different occasions. Overall, the department was able to hire excellent contributing scientists and all the classes were taught as scheduled. I developed a respect and appreciation for each member of the faculty and especially for the chairs who were able to amiably lead this group of scientists with such diverse interests and research expertise. I look back with fond memories of my time spent in the Department of Zoology and Entomology as a student and in the Department of Zoology as a faculty member.

CURRICULUM VITAE
OF THE FACULTY
DEPARTMENT OF ZOOLOGY AND
ENTOMOLOGY
AND
DEPARTMENT OF ZOOLOGY
Listed in Alphabetical order

CURRICULUM VITAE

A. Lester Allen

Sources: <http://www.walkersanderson.com/obituaries/A.-Lester-Allen/Orem-UT/1397878>

UA 909; Faculty Biographical Files; University Archives; L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University.

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: 24 September 1923, Los Angeles, California

Death: 4 March 2014, Orem, Utah

Education:

BA, University of California at Los Angeles, 1946

PhD, University of California at Los Angeles, 1951

Employment:

First Lieutenant, Army Air Corp, 1943-1946

Instructor in Life Sciences, Orange Coast College, Costa Mesa, California, 1951-1954

Faculty Member, Department of Zoology, Brigham Young University, 1954-1989

NIH Post-doctoral fellowship, University of California at Los Angeles, 1960-1961

Service:

Chair, Department of Zoology and Entomology, Brigham Young University, 1966-1970

Dean, College of Biological and Agricultural Sciences, 1970-1981

Teaching:

Genetics, Vertebrate Embryology, Experimental Embryology, Radiation Biology, Radiation Biology Laboratory, Theoretical Ecology, Animal Biology, Bioethics

Publications:

Allen AL and Mulkay LM. X-Ray effects on embryos of the Paradise Fish, with notes on normal stages. *Growth* 24:131-168, 1960.

Ford LC, Donaldson DM, Allen AL. Protection of mice by postirradiation treatment with a cell-free component of spleen. *Proc Soc Exp Biol Med*. 127(1):286-9, 1968.

CURRICULUM VITAE

Verl P. Allman

Source:

<http://www.byhigh.org/History/VerlAllman/VerlAllman.html> (includes obituary)

Allman VP. *Autobiography of Verl Phillips Allman*. Brigham Young University Press, Provo, Utah, 367 p, 2004.

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: 12 May 1917, Mammoth, Utah

Death: 11 October 2008, Provo, Utah

Education:

BS, Brigham Young University, 1948

MS, Brigham Young University, 1952

Employment:

Science Teacher, BY High, Provo, Utah, 1950-1968

Faculty Member, General College, Brigham Young University, 1968-1971

Faculty Member, Department of Zoology, Brigham Young University, 1971-1983

Ranger, Uinta National Forest, National Forest Service, Summers, 1968-1969

Teaching:

Animal Biology

Secondary Teaching Procedures in Biology

Natural History for Elementary Teachers

Honors:

Outstanding Biology Teacher of Utah, National Association of Biology Teachers, 1968

Teacher of the Month, College of Biology and Agriculture, Brigham Young University, March 1980

Sabbatical Leaves:

Fulbright Scholarship, Nigerian College of Arts, Science, and Technology, Enugu, Nigeria, 1958-1959

Teacher, Mkushi International College, Zambia 1965-1967

Teacher Development, LDS Schools in Mexico, 1973-1974

Presentations at National Meetings:

Allman VP, and Baird H. Measurement and evaluation of teachers in a field centered competency based teacher education program. Annual Convention of the California Educational Research Association, Los Angeles, California, November 17, 1977.

Allman VP, Baird H, et al. Science interests of junior and senior high school students in Utah. 54th Annual Convention of the National Association for Research in Science Teaching. Grossingers in the Catskills, New York, April 5-8, 1981.

Publications:

Allman VP. Autobiography of Verl Phillips Allman. Brigham Young University Press, Provo, Utah, 367 p, 2004.

Allman VP and Allman LM. Thomas Allman family history – From Staffordshire England to Utah Valley. Brigham Young University Press, Provo, Utah, 426 p, 1998.

Allman VP. A preliminary study of the vegetation in an enclosure in the chaparral of the Wasatch Mountains, Utah, Thesis, Brigham Young University, Provo, Utah, 1952

Lazarowitz R, Baird JH, and Allman V. Reasons why elementary and secondary students do and do not like science. *School Science and Mathematics* 85:663, 1985.

CURRICULUM VITAE

Dorald M. Allred

Sources:

Tanner, W.W. Dorald Mervin Allred, 1923-1996. *Great Basin Naturalist* 57(1):70-73, 1997.

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: July 11, 1923, Lehi, Utah

Death: June 20, 1996, Lehi, Utah

Education:

BS, Entomology, Brigham Young University Department of Zoology and Entomology, 1950.

MS, Entomology, Brigham Young University, Department of Zoology and Entomology, 1951

PhD, University of Utah, 1954

Employment:

Entomologist, Dugway Proving Grounds, Utah, U.S. Army, 1954-1956

Department of Zoology and Entomology, Brigham Young University, 1956-1987

Administrative Assignments:

Administrative Assistant to Dean A. Lester Allen, College of Biology and Agriculture, Brigham Young University (1974-1977)

Assistant Director Bean Museum (1976-1982)

Director Bean Museum (1982-1987)

Teaching Assignments:

Research Organization and Reporting

Acarology

Animal Biology

Biology Techniques

Natural History for Elementary Teachers

Applied Ecological Concepts

Nature Study Methods

Parsitology

Honors:

Professor of the Year, Brigham Young University, 1958

Karl G. Maeser Research Award, Brigham Young University, 1967

Certificate of Merit for the Dictionary of International Biology, 1970

Publications (coauthors not necessarily in order):

Allred DM (with Tipton VJ). New distribution records of Utah Siphonaptera with the description of a new species of *Megarhthroglossus* Jordan and Rothschild 1915. *Great Basin Naturalist* 11:105-114, 1951.

Allred DM (with Beck DE). Further distributional data on Utah Siphonaptera. *Proceedings of the Utah Academy of Science, Arts, and Letters* 28: 113-114, 1952.

Allred DM. Plague important fleas and mammals in Utah and the western United States. *Great Basin Naturalist* 12:67-75, 1952.

Allred DM (with Beck DE). Mite fauna of wood rat nests in Utah. *Proceedings of the Utah Academy of Science, Arts, and Letters* 30: 53-56, 1953.

Allred DM (with Beck DE). A new species of *Acomatacams* (Acarina: Trombiculidae) from Utah. *Great Basin Naturalist* 13:87-90, 1953.

Allred DM. Mites as intermediate hosts of tapeworms. *Proceedings of the Utah Academy of Science, Arts, and Letters* 31:44-51, 1954.

Allred DM (with Mulaik S). New species and distribution records of the genus *Caeculus* in North America. *Proceedings of the Entomological Society of Washington* 56: 27-40, 1954.

Allred DM. Observations on the stylosome (feeding tube) of some Utah chiggers. *Proceedings of the Utah Academy of Science, Arts, and Letters* 31: 61-63, 1954.

Allred DM (with Beck DE). Seasonal study of the tick, *Ornithodoros hetmsi*, found in the nests of the desert wood rat, *Neotoma lepida lepida*, in Utah. *Proceedings of the Utah Academy of Science, Arts, and Letters* 32: 131-135, 1955.

Allred DM. Ticks and mites as potential vectors. Pages 66-69 in Symposium on the ecology of disease transmission in native animals. U.S.Army Publication, Dugway, UT, 1955.

Allred DM (with Strandtmann RW). Mites of the genus *Brevisterna* Keegan, 1949 (Acarina: Haemogamasidae). *Journal of the Kansas Entomological Society* 21: 113-132, 1956

Allred DM (with Stagg CN, Lavendar JF). Experimental transmission of *Pasteurella tularensis* by the tick *Dermacentor parumapertus*. *Journal of Infectious Diseases* 99: 143-145, 1956.

Allred DM (with Roscoe EJ). Life history of the tick *Dermacentor pammupertus* in Utah. *Journal of Parasitology* 42: 516-522, 1956.

Allred DM. Mites found on mice of the genus *Peromyscus* in Utah. I. General infestation. *Great Basin Naturalist* 16:23-31, 1957.

Allred DM (with Roscoe EJ) Parasitic mites in desert wood rat nests with notes on free-living forms. *Transactions of the American Microscopical Society* 76: 389-403, 1956.

Allred DM (with Marchette NJ). Experimental feeding of the mite *Brevisterna utahensis* (Acarina: Haemogamasidae). *Journal of Parasitology* 43:51-54, 1957.

Allred DM. The male, deutonymph and protonymph of the mite *Eubrachyla elaps circularis* (Ewing) (Acarina: Laelapidae) with notes on morphological variations. *Annals of the Entomological Society of America* 50:206-209, 1957.

Allred DM. Mites found on mice of the genus *Peromyscus* in Utah. II. Family Haemogamasidae. *Proceedings of the Entomological Society of Washington* 59: 31-39, 1957.

Allred DM. Mites found on mice of the genus *Peromyscus* in Utah. III. Family Dermanyssidae. *American Midland Naturalist* 57: 450-460, 1957.

Allred DM. Mites found on mice of the genus *Peromyscus* in Utah. 'Trombiculidae and miscellaneous families. *Great Basin Naturalist* 17: 95-102, 1957.

Allred DM. A new species of mite, *Hirstionyssus bisetosus*, from the nests of the desert wood rat, *Neotoma lepida* Thomas. *Proceedings of the Entomological Society of Washington* 59: 83-89, 1957.

Allred DM. Notes on the life history and bionomics of the wood rat mite, *Brevisterna utahensis* (Acarina). *Transactions of the American Microscopical Society* 76:72-78, 1957.

Allred DM (with Howell JF, Beck DE). Seasonal population fluctuations of mites in desert wood rat nests in central Utah. *Ecology* 38: 82-88, 1957.

Allred DM. Setal variations on mites of the species *Brevisterna utahensis* (Ewing) (Acarina). *Proceedings of the Utah Academy of Science, Arts, and Letters* 34:51-54, 1957.

Allred DM. Mites found on mice of the genus *Peromyscus* in Utah. IV. Families Laelapidae and Phytoseiidae. *Pan-Pacific Entomologist* 34: 17-32, 1958.

Allred DM. A new species of pit mite (Acarina: Ophioptidae) infesting snakes. *Herpetologica* 14:107-112, 1958.

Allred DM. Redescription of *Ophioptes tropicalis* Ewing, 1933 (Acarina, Ophioptidae). *Proceedings of the Entomological Society of Washington* 60: 287-288, 1958.

Allred DM (with Beck DE, Murdock JR). Comparative ecological studies of animals exposed to nuclear detonation (abstract). *Proceedings of the Utah Academy of Science, Arts, and Letters* 37: 152-153, 1960.

Allred DM (with Beck DE, Wood SL). Laboratory guide for animal biology. Brigham Young University Press, Provo, UT. 83 pp., 1960.

Allred DM. Medical arthropodology laboratory guide. Burgess Publishing Co., Minnesota. 84 pp, 1960.

Allred DM (with Beck DE, White LD). Ticks of the genus *Ixodes* in Utah. *Brigham Young University Science Bulletin, Biological Series* 1(4):1-42, 1961.

Allred DM. Parasitic mites on marmots in Utah. *Journal of Parasitology* 47: 124, 1961.

Allred DM. Comparative ecological studies of animals of the Nevada Test Site, with specific reference to their reaction to exposure of nuclear effects. U.S. Atomic Energy Commission Contract AT (11-1) 786. For the period 1 June 1960 to 31 August 1961.

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CURRICULUM VITAE

Ferron L. Andersen

Sources:

Curriculum Vitae submitted by Ferron L. Andersen

Pub Med and Biosis Citation Indexes for Publications

UA 1195, Box 3, Folder 2, Department of Zoology Records, L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University for additional publications

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: 10 July 1931, Howell, Box Elder County, Utah

Education:

Grade School, Howell Elementary School (2-room), 1938-1945

Bear River High School, Tremonton, Utah 1945-1947

Graduated, Blackfoot High School, Blackfoot, Idaho, 1949

Ricks College, Rexburg, Idaho, 1949-1954 (intermittent)

BS, Zoology, Utah State University, Logan Utah, 1957

MS, Utah State University, Logan, Utah, 1962. Thesis: The morphology of *Trichomonas ovis* from the cecum of domestic sheep.

PhD, Utah State University, Logan, Utah 1963. Dissertation: The site of the immune reaction against *Eimeria bovis* in calves and the demonstration of antibodies by immunofluorescence.

Employment:

Research Assistant, College of Veterinary Medicine, University of Illinois, 1962

Assistant Professor, Veterinary College, University of Illinois, 1963-1966

Faculty Member, Department of Zoology and Entomology and Department of Zoology, 1966-1998

Teaching:

Basic Biology

Basic Physiology

Histology (1 term when Dr. Heckmann had back surgery)

Medical Parasitology

Veterinary Parasitology

Graduate Orientation

Research Methodology

Awards:

Annual Achievement and Service Award (Zoology), 1982-1983

Faculty Creative Achievement Award, College of Biological and Agricultural Sciences, 1985

Distinguished Alumnus Award, Ricks College, Rexburg Idaho, 1990

1st College of Biology and Agriculture Professional Award, 1991-1992

Honorary Professorship, Beijing Research Institute of Tropical Medicine, Beijing, People's Republic of China, 1991

Special Recognition Award, 16th International Congress of Hydatidology, Beijing, People's Republic of China. 1993

Wesley P. Lloyd University Award for contribution to graduate education at BYU, 1993.

Honorary Research Fellow, Xinjiang Academy of Animal Science, Xinjiang, PRC, 1989-1994

1st Member of Foreign Advisory Panel to the National Hydatid Disease Center of China, 189-1994

Main Research Projects at BYU:

1967 - 1993: Effect of irrigation on development of parasitic larvae at grass-level microenvironments. College of Biology and Agriculture and Cooper Drug Company, Chicago, Illinois; Approx. \$20,000.

1971 - 1974: National Institutes of Health, Bethesda, Maryland; Epidemiology of hydatid disease; \$95,433.

1974-1977: Ibid. \$101,488.

1978-1980: Ibid. \$119,281.

1980-1983: Ibid. \$133,332.

1991 - 1993: Epidemiology and transmission potential of cystic hydatid disease in the Xinjiang Uygur Autonomous Region (XUAR) of the People's Republic of China (PRC). The Thrasher Research Fund; \$69,794.

1992 - 1994: Publication of "Compendium on Cystic Hydatid Disease in the Xinjiang Uygur Autonomous Region (XUAR), PRC". College of Biology and Agricultural Science; \$6,587.

1994 - 1996: Epidemiology of cystic hydatid disease in Morocco. Surveillance for causative parasite (*Echinococcus granulosus*) and formulation of preventive and control measures. The Thrasher Research Fund; \$66,685.

1995 - 1997: Compilation and publication of "Compendium on Cystic Echinococcosis in Africa and some Middle Eastern Countries" The Thrasher Research Fund; \$20,000.

Periodic Review of Articles Submitted to Scientific Journals:

Journal of Parasitology

Journal of Protozoology

American Journal of Veterinary Research
Experimental Parasitology
J.A.V.M.A.
American Journal of Tropical Medicine and Hygiene

Membership in Professional Societies:

American Society of Parasitologists
Protozoology
Rocky Mountain Conference of Parasitologists (honorary life member).

Administrative Assignments at BYU:

Department Chair of Zoology (1981 - 1984)
Graduate Coordinator for Zoology (1984 - 1996)
Graduate Coordinator for College of Biology and Agriculture (1986 - 1996)
Member National Science Foundation Predoctoral Fellowship Awards Committee
(1988-1991)

Graduate Students Directed at BYU:

PhD students:

William R. Jolley 1973
George A. Conder 1979
John R. Crellin 1981
Alan A. Marchiondo 1982
Jeffery A. Short 1988
Ru-jing Ming 1993

MS Students:

Thomas C. Baker 1969
Anthony T. Chang 1969
J. Carl Fox 1970
Phil D. Wright 1971
C. Larry Keener 1972
Dennis R. Downs 1972
Gary L. McCallister 1973
Larry N.M. Cowgill 1973
Raymond M. Loveless 1973
James B. Jensen 1974
Lauritz A. Jensen 1975
Thomas W. Sawyer 1975
James C. Brown 1976

Graham R. Bullick 1978
John L. Clayton 1979
Russell S. Bishop 1985
Elsayed A. Ahmed 1986
Maki Ujiie 1994

Publications:

Andersen FL et al. Changes in blood of calves experimentally infected with *Ostertagia ostertagi* or *Haemonchus placei*. *J Parasitol* 46:38-39, 1960.

Andersen FL, and Levine ND. *Tritrichomonas batrachorum* in a hog-nosed snake. *J Parasitol* 47:877-878, 1961.

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Hammond DM, Andersen FL, Miner ML. The site of the immune reaction against *Eimeria bovis* in calves. *J Parasitol* 48:415-422, 1963.

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Conder GA, Marchiondo AA, Andersen FL. Effect of praziquantel on adult *Echinococcus granulosus* in vitro: scanning electron microscopy. *Z Parasitenkd* 66:191-199, 1981.

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CURRICULUM VITAE

Richard W. Baumann

Sources:

Search of BYU Website for Richard W. Baumann

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Science Citation Index search for Baumann RW

Zoological Record Search for Baumann RW

http://apps.webofknowledge.com/summary.do?product=WOS&parentProduct=WOS&search_mode=GeneralSearch&qid=1&SID=3DUAYUizMLnZOr25IkE&page=1&action=changePageSize&pageSize=50

<http://lsmagazine.byu.edu/Issues/fall2006/steppingdown.aspx>

<https://news.byu.edu/news/byus-bean-museum-names-insect-collection-after-two-researchers>

http://plecoptera.speciesfile.org/HomePage/Plecoptera/LitArchive/PerlaNo34_2016.pdf

Education:

BA, University of Utah, 1965

MS, University of Utah, 1967

Doctoral Student, University of Montana 1968-1969

PhD, University of Utah, 1970

Postdoctoral Student, Max Planck Limnology Insitute, Schlitz, Germany 1971

Employment:

Assistant Professor, Biology Department, Southwest Missouri State University 1972

Research Entomologist, U.S. National Collection of Insects, Smithsonian Institution 1973-1975

Faculty Member, Department of Zoology, Brigham Young University, 1975-2006

Teaching:

Introduction to Biology

Introduction to Entomology

Aquatic Entomology

Ichthyology
Phycology
Field Entomology
Limnology
Systematic Zoology
Insect Classification

Administration and Service:

Editor, Great Basin Naturalist (Western North American Naturalist), 1994-2003
Director, Monte L. Bean Life Science Museum, 1982-1984
Editor of Perla, International Newsletter for Plecopterologists, 1974-1991
Curator of Insects, Bean Life Science Museum, 1979-2006

Honors and Awards:

Blue Key Honor Society Professor of the Month, October, 1982
Bean Museum Aquatic Entomology Collection named after Richard W. Baumann, 2009.

Publications:

Baumann RW, Gaufin, AR. A new species of *Capnia* (Plecoptera: Capniidae) from Arizona. *Entomol News* 80: 75-78, 1969.

Baumann RW, Gaufin AR. The stoneflies (Plecoptera) of the Wasatch mountains, Utah. *Proc Utah Acad Sci* 46:106-113, 1969.

Baumann RW, Gaufin AR. The *Capnia projecta* complex of western North America (Plecoptera: Capniidae). *Trans Am Entomol Soc* 96:435-468, 1970.

Baumann, RW, Gaufin, AR. New species of *Nemoura* from western North-America (Plecoptera Nemouridae). *Pan-Pacific Entomol* 47: 270-278, 1971.

Baumann, RW, Gaufin AR. 1972. The *Amphinemura venusta* complex of western North America (Plecoptera: Neniouridae). *Nat Hist Mus Los Angeles Co Contr Sci* 226:1-16, 1972.

Baumann RW. Studies on Utah stone flies (Plecoptera). *Great Basin Nat* 33:91-108, 1973.

Baumann RW. New *Megaleuctra* from the eastern United States (Plecoptera: Leuctridae). *Entomol News* 84:247-250, 1973.

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- Baumann RW. Water insects and their relatives. *Am Biol Teach* 39:295-298, 1977.
- Baumann RW, Gaufin AR, Surdick RF. The stoneflies (Plecoptera) of the Rocky Mountains. *Memoirs Am Ent Soc* 31:1-208, 1977.
- Stark WP, Baumann RW. New species of Nearctic Neoperia (Plecoptera: Perlidae), with notes on the genus. *Great Basin Nat* 38:97-114, 1978.
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- Baumann RW. Nearctic stonefly genera as indicators of ecological parameters (Plecoptera: Insecta). *Western North Amer Nat* 39:241-244, 1979.
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- Kondratieff BC, Baumann RW. Studies on stoneflies of North Dakota with the description of a new *Perlesta* species (Plecoptera, Perlidae). *Proc Entomol Soc Wash* 101:325-331, 1999.
- Baumann RW, Kondratieff BC. A confirmed record of the Ephemeroptera genus *Baetisca* from west of the continental divide and an annotated list of the mayflies of the Humboldt River, Nevada. *Western North Amer Nat* 60:459-461, 2000.
- Huntsman BO, Baumann RW, Kondratieff BC. The stoneflies (Plecoptera) of South Dakota. *Entomol News* 112:104-111, 2001.
- Baumann RW, Fiala GR. *Nanonemoura*, a new stonefly genus from the Columbia River Gorge, Oregon (Plecoptera, Nemouridae). *Western North Amer Nat* 61:403-408, 2001.
- Kondratieff BC, Baumann RW. A review of the stoneflies of Colorado with description of a new species of *Capnia* (Plecoptera, Capniidae). *Trans Amer Entomol Soc* 128:385-401, 2002.
- Baumann RW, Jacobi GZ. *Capnia caryi*, an interesting new species of winter stonefly from the American Southwest (Plecoptera: Capniidae). *Western North Amer Nat* 62:484-486, 2002.
- Kondratieff BC, Baumann RW. Confirmation of the pygmy snowfly, *Allocapnia pygmaea* (Burmeister) (Plecoptera : Capniidae), from North Dakota, United States. *Entomol News* 114:289-290, 2003.
- Kondratieff BC, Baumann RW. A record of the arctic forestfly, *Nemoura arctica* (Plecoptera : Nemouridae), from the contiguous United States. *Entomol News* 115:113-115, 2004.

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Baumann RW, Kondratieff BC. The *Alloperla severa* complex (Plecoptera:Chloroperlidae) of Western North America. *Illiesia* 4:66-75, 2008.

Newell RL, Baumann RW, Stanford JA. Stoneflies of Glacier National Park and Flathead River Basin, Montana. *Univ Cal Pub Entomol* 128:173-186, 2008.

Kondratieff BC, Baumann RW. Stonefly collecting during the XVI Internatioanl Symposium on Plecoptera, 2008. *Perla* 27:46-47, 2009.

Baumann RW, Hudson JP. *Lethocerus americanus* (Hemiptera: Belostomatidae) (Leidy) Newly Recorded from Southeastern Alaska. *Proc Entomol Soc Wash* 111:280-281, 2009.

Baumann RW, Kondratieff BC. Studies on the Holarctic subfamily Brachypterainae (Plecoptera: Taeniopterygidae) using the scanning electron microscope to study male Terminalia. *Aquatic Insects* 31:219-230, 2009.

- Baumann RW, Kondratieff BC. A study of the eastern Nearctic *Alloperla* (Plecoptera: Chloroperlidae) with hirsute epiprocts using the scanning electron microscope. *Illiesia* 5:99-107, 2009.
- Baumann RW, Kondratieff BC. Studies on *Oemopteryx vanduzeei* (Claassen, 1937) and a new species in the *O. vanduzeei* species group (Plecoptera: Taeniopterygidae) from the Pacific Northwest, USA. *Aquatic Insects* 31:195-202, 2009.
- Kondratieff BC, Baumann RW. A contribution to the knowledge of *Sweltsa exquisita* (Frison) and *S. occidentalis* (Frison), and a new species of *Sweltsa* from Montana. *Illiesia* 5:20-29, 2009.
- Baumann RW, Kondratieff BC. *Malenka murvoshi*, a new species of stonefly from the Spring Mountains of southern Nevada (Plecoptera: Nemouridae). *Illiesia* 6: 113-117, 2010.
- Baumann RW, Kondratieff BC. The stonefly genus *Lednia* in North America (Plecoptera: Nemouridae). *Illiesia* 6:316-328, 2010.
- Boumans L, Baumann RW. *Amphinemura palmeni* is a valid Holarctic stonefly species (Plecoptera: Nemouridae). *Zootaxa* 3537:59-75, 2012.
- Kondratieff BC, Baumann RW. A new species of the western North American genus *Triznaka* from Oregon (Plecoptera: Chloroperlidae). *Illiesia* 8:10-15, 2012.
- Stark BP, Baumann RW. Kenneth W. Stewart, 1935-2012: Obituary and list of publications. *Western North Amer Nat* 73:118-126, 2013.
- Newell RL, Baumann RW. Studies on distribution and diversity of nearshore Ephemeroptera and Plecoptera in selected lakes of Glacier National Park, Montana. *Western North Amer Nat* 73:230-236, 2013.
- Stark BP, Baumann RW, Kondratieff BC, Stewart KW. Larval and egg morphology of *Paraperla frontalis* (Banks, 1902) and *P. wilsoni* Ricker, 1965 (Plecoptera: Chloroperlidae). *Illiesia* 9: 101-108, 2013.
- Grubbs SA, Baumann RW, DeWalt RE, et al. A review of the Nearctic genus *Prostoia* (Ricker) (Plecoptera, Nemouridae), with the description of a new species and a surprising range extension for *P. hallasi* Kondratieff & Kirchner. *Zookeys* 401:11-30, 2014.
- Rutter DE, Baumann RW, Flint OS. Studies on the caddisfly (Trichoptera) fauna of Nevada. *Pan Pacific Entomol* 90:23-32, 2014.
- Grubbs, SA, Baumann RW, Sheldon AL. A review of eastern Nearctic *Zapada* (Plecoptera, Nemouridae) with a new species from the Great Smoky Mountains. *Freshwater Sci* 34:1312-1323, 2015.
- Myrup AR, Baumann RW. The Dragonflies and Damselflies (Odonata) of Utah. *Monographs Western North Amer Nat* 9:1-114, 2016.

CURRICULUM VITAE

D. Elden Beck

Source:

Tanner VM, D. Elden Beck (1906-1967). *Great Basin Nat* 27:230-239, 1967.

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: April 11, 1906, Spanish Fork, Utah

Death: August 9, 1967, Provo, Utah

Education:

BA, Zoology and Entomology, Brigham Young University, 1929

MA, Zoology and Entomology, Brigham Young University, 1930

PhD, Entomology, Iowa State College, Ames, Iowa, 1933

Employment:

Head, Biological Department, Dixie College, St. George, Utah, 1933-1938

Faculty Member, Department of Zoology and Entomology, 1938-1942; 1945-1967

Medical Entomological Service, US Army, Camp Barkley, Abilene, Texas; Fort McPherson and Fort Benning, Georgia; Camp Ellis, Illinois; Camp Plauche, Louisiana; Guadalcanal, Solomon Islands, 1943-1945

Service and Administration:

President, Provo Junior Chamber of Commerce, 1947

Development of the mosquito control program for Utah County, 1946-1947

Editor, Provo, Utah, Centennial Souvenir, 1949

Adviser, World Health Organization on malaria mosquito control for the Chinese government in Taiwan, 1956-1958

Chair, Department of Zoology and Entomology, 1962-1965

Society Memberships:

Sigma Xi

Utah Academy of Sciences, Arts, and Letters

American Society of Parasitologists

American Wildlife Disease Association

American Mosquito Control Association

Utah Mosquito Abatement Association

Research Support:

Principal Investigator, Ectoparasites of Mammals of the western United States, National Institutes of Health, 1951

Associate Investigator (with Allred DE), Ecological Study of the Nevada Test Site, Atomic Energy Commission, 1959-1964

Principal Investigator (with Allred DE), Ecological Study of the Nevada Test Site, 1964-1966

Teaching:

Invertebrate Zoology
Comparative Anatomy
Histology
Embryology
Eugenics
General Zoology
Heredity
Vertebrate Anatomy and Physiology
Nature Study for Teachers
Field Zoology
Animal Parasitology
Principles of Ecology and Biogeography
Field Methods in Ecology and Faunistics
Distributional Study of Parasitic Arthropods
Studies in the Distribution of Invertebrates
Taxonomy of Local Invertebrate Fauna
Special Problems in Invertebrate Zoology
Animal Biology

Awards and Honors:

Distinguished Service Award, Provo Junior Chamber of Commerce, 1947

Honored by Dr. Harry H. Knight, Entomologist at Iowa State University with one new genus and five new species named in his honor: *Beckocoris laticephalus*, *Chlamydatus becki*, *Nevadocoris becki*, *Lopidea becki*, *Parthenicus becki*, *Phytocoris becki*

Publications (coauthors not necessarily in order):

Beck DE. Bees of the sub-family Osmiinae in the collection of the BYU Zoology Dept. *Bull Brooklyn Ent Soc* 24:303-306, 1929.

Beck DE. Length of the developmental stages of the Horn-fly *Haemotobia irritans* at constant temperature. *J Economic Ent* 24:, 1931.

Beck DE. A morphological study of the male genitalia of various genera of bees. *Proc Utah Acad Sci* 10:89-137, 1933.

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Beck DE. Capitol Reef. *Utah Mag* 2:6,15,20, 1937.

Beck DE. Social Hygiene. *Utah Ed Rev* 32:171-186, 1939.

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Beck DE. Coyote Gulch. *Improvement Era* 4:462-463, 1943.

Beck DE. California gull - a comparative plumage study. *Great Basin Nat* 4:57-51, 1943.

Beck DE. Down the Escalante. *Utah Mag* 8 (4):24,24,45,49-50; (5):32-33, 48; (6):30,45-47;(7):30-32,42,44; (8):30-31,33,36-37; (9):30-31,43-44, 1946.

Beck DE. The seagull in Utah. *Utah Mag* 9:22-25, 1947.

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Beck DE. Some observations on biology instructions in secondary schools. *Proc 8th Ann Conf Higher Ed: Utah Conferences on Higher Education*, September 1951.

Beck DE (with Allred DE). Mite fauna of woodrat nests in Utah. *Proc Utah Acad Sci, Arts, Lett* 30:53-56, 1953.

Beck DE (with Barnum AH, Moore L). Arthropod consortes found in the nests of *Neotoma cinerea acraia* (Ord) and *Neotoma lepida lepida* Thomas. *Proc Utah Acad Sci, Arts, Lett* 30:43-52, 1953.

Beck DE. A study of some consortes found at a nesting site of the northern cliff swallow *Petrochelidon albifrons albifrons* (Rafinesque). *Proc Utah Acad Sci, Arts, Lett* 30:39-42, 1953.

Beck DE (with Allred DE). A new species of *Acomatacarus* (Acarina, Trombiculidae) from Utah. *Great Basin Nat* 13:87-90, 1953.

Beck DE. Distribution and plague vectors in Utah. Seventieth Annual Sigma Xi Address, BYU Chap Proc, 1953.

Beck DE. Ecological and distributional notes on some Utah Hirudinea. *Proc Utah Acad Sci, Arts, Lett* 31:73-78, 1954.

Beck DE. Distributional records of some aquatic coleoptera in Utah. *Proc Utah Acad Sci, Arts, Lett* 31:52-56, 1954.

Beck DE. Distributional and natural history notes on *Polycelis coronata* in Utah. *Proc Utah Acad Sci, Arts, Lett* 31:79-82, 1954.

Beck DE. Potential and capable vectors of Rocky Mountain Spotted Fever and plague in Utah. *BYU Sci Bull, Biol Ser* 1:1-64, 1955.

Beck DE. Some unusual distributional records of ticks in Utah. *J Parasitol* 41:1-4, 1955.

Beck DE (with Brennan JM). The chiggers of Utah (Acarina: Trombiculidae). *Great Basin Nat* 15:1-26, 1955.

Beck DE (with Allred DM). Seasonal study of the tick, *Ornithodoros hermsi* found in nests of the desert wood rat, *Neotoma lepida lepida* in Utah. *Proc Utah Acad Sci, Arts, Lett* 32:131-135, 1955.

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CURRICULUM VITAE

Mark C. Belk
Professor of Biology

PERSONAL INFORMATION

Present address: Department of Biology
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Married to Laura Ann Belk; nine children, Jacob, Rachel, Brittan, Caleb, Alaina, Lillian, Jared, Matthew, and Kai.

ACADEMIC RECORD

- A.S. Ricks College; Rexburg, Idaho
1983, Zoology, High Honors
- B.S. Brigham Young University; Provo, Utah
1985, Zoology, Magna Cum Laude
- M.S. Brigham Young University; Provo, Utah
1987, Zoology, Thesis title: Use and partitioning of montane habitat by small mammals: a multivariate approach. Major professor: Dr. H. Duane Smith
- Ph.D. University of Georgia; Athens, Georgia. 1992, Zoology. Major professor: Dr. Michael H. Smith. Dissertation title: Ecology of bluegill (Lepomis macrochirus) under heavy predation.

PROFESSIONAL HISTORY

Professor of Biology, Brigham Young University 2007 - present
Professor of Integrative Biology, Brigham Young University. 2006 - 2007.
Associate Professor of Integrative Biology, Brigham Young University. 2002- 2006.
Associate Professor of Zoology, Brigham Young University. May 1998 - 2002.
Assistant Professor of Zoology, Brigham Young University. September 1992 - 1998.

RECENT FUNDING

Utah Division of Wildlife Resources, M.C. Belk. Food web structure in Jordanelle reservoir: what happens to all those rainbow trout? 2015-2016, \$11,000.

Utah Division of Wildlife Resources, M.C. Belk. Food web structure in Lake Powell: anticipating the invasion and spread of Quagga mussel. 2015-2016, \$20,000.

Central Utah Water Conservancy District, M.C. Belk, A population matrix model for June sucker in Utah Lake: assessment of management practices in a stochastic environment. 2012-2013, \$38,375.

Central Utah Water Conservancy District, M.C. Belk, Characterization of mouth shape phenotype in the captive brood stock of June sucker, *Chasmistes liorus*. 2010-2014, \$42,964.

Bureau of Land Management, Wyoming. M.C. Belk. Landscape scale analysis of Northern Leatherside habitat requirements and population dynamics. 2010-2017, \$238,000.

PROFESSIONAL ORGANIZATIONS

Ecological Society of America

The Society for the Study of Evolution

American Society of Naturalists

American Society of Ichthyologists and Herpetologists

American Fisheries Society

Association for Tropical Biology and Conservation

June Sucker Recovery Implementation Program - Technical Committee, Recovery Team

Least chub Technical Committee

Spotted Frog Technical Committee

Northern and Southern Leatherside chub Technical Committee

PUBLICATIONS

- Smith, A.N., J.C. Creighton, and M.C. Belk. 2015. Differences in patterns of reproductive allocation between the sexes in *Nicrophorus orbicollis*. Plos One 10:1-16, DOI 10.1371/journal.pone.0143762.
- Houston, D.D., K.S. Mitchel, J.W. Clouse, P.J. Maughan, J.C. Creighton, A.N. Smith, S.N. Bybee, M.C. Belk. 2015. SNP development in North American burying beetles (Coleoptera: Silphidae): a tool to inform conservation decisions. Conservation Genetics Resources 7:349-352.
- Oguz, M.C., Y. Tepe, M.C. Belk, R. Heckmann, B. Aslan, M. Gurgen, R.A. Bray, U. Akgul. 2015. Metazoan parasites of Antarctic Fishes. Turkish Journal of Parasitology 39:174-178.
- Wesner, JS, and MC Belk. 2015. Variation in the trophic position of common stream fishes and its relationship to the presence of a rare fish, northern leatherside chub (*Lepidomeda copei*). Ecology of Freshwater Fish 24:234-241.
- Wesner, JS, PJ Meyers, EJ Billman, MC Belk. 2015. Habitat selection and consumption across a landscape of multiple predators. Ecology and Evolution 5:121-129
- Creighton, JC, AN Smith, A Komendat, MC Belk. 2015. Dynamics of biparental care in a burying beetle: experimental handicapping results in partner compensation. Behavioral Ecology and Sociobiology, 69:265-271.
- Belk, MC, S Bird, MC Oguz, JB Johnson. 2014. Differences in pelvic fin length represent sexual dimorphism in Utah chub (*Gila atraria*). The Open Fish Science Journal 7:42-45
- Smith, AN, MC Belk, JC Creighton. 2014. Residency time as an indicator of reproductive restraint in male burying beetles. PLOS One 9:1-6.
- Billman, EJ, JE Rasmussen, JC Creighton, JB Johnson, and MC Belk. 2014. A multivariate approach to the analysis of within lifetime variation in life history. Methods in Ecology and Evolution 5:797-805.
- Laidlaw CT, JM Condon, and MC Belk. 2014. Viability costs of reproduction and behavioral compensation in western mosquitofish (*Gambusia affinis*). PLOS One 9:1-5.
- Meyers, PJ, and MC Belk. 2014. Shape variation in a benthic stream fish across flow regimes. Hydrobiologia, 738:147-154.
- Billman E, and MC Belk. 2014. Effect of age-based and environment-based cues on reproductive investment in *Gambusia affinis*. Ecology and Evolution 4:1611-1622.
- Billman, E, CJ, Creighton, MC Belk. 2014. Prior experience affects allocation to current reproduction in a burying beetle. Behavioral Ecology, 25: 813-818.
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- Belk, MC, E. Habit, JJ Ortiz-Sandoval, C. Sobenes, and EA Combs. 2014. Ecology of *Galaxias platei* in a depauperate lake. Ecology of Freshwater Fish *in press*.
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- J.S. Wesner, E.J. Billman, and M.C. Belk. 2012. Multiple predators indirectly alter community assembly across ecological boundaries. Ecology 93:1674-1682.
- J.S. Wesner, and M.C. Belk. 2012. Habitat relationships among biodiversity indicators and co-occurring species in a freshwater fish community. Animal Conservation 15:445-456.
- J.E. Rasmussen, and M.C. Belk. 2012. Dispersal behavior correlates with personality of a North American fish. Current Zoology 58:260-270.
- E.M.A. Hassell, P.J. Meyers, E.J. Billman, J.E. Rasmussen, and M.C. Belk. 2012. Ontogeny and sex alter the effect of predation on body shape in a livebearing fish: sexual dimorphism, parallelism, and costs of reproduction. Ecology and Evolution 2:1738-1746.
- E.J. Billman, J.D. Kreitzer, J.C. Creighton, E. Habit, B.M. McMillan, M.C. Belk. 2013. Habitat enhancement and native fish conservation: can enhancement of channel complexity promote the coexistence of native and introduced fishes? Environmental Biology of Fishes 96:555-566.
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- M.C. Belk, R.B. Rader, and M.D. Mills. 2011. Lake suckers in the western U.S.A.: history, ecology, natural history, and bibliography of an endangered genus. Western North American Naturalist 71: 437-441
- J.E. Rasmussen, M.C. Belk, E. Habit, D.K. Shiozawa, R.D. Hepworth, and A. Anthony. 2011. Variation in size-at-age between native cutthroat and introduced brown trout in allopatry and sympatry: implications for competitive interaction. Aquatic Biology 13:285-292.
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- Bell, A., and M.C. Belk. 2004. Diet of leatherside chub, *Snyderichthys copei*, in the fall. *Western North American Naturalist* 64:413-416.
- Rader, R.B., M. C. Belk, and M. J. Keleher. 2003. The introduction of an invasive snail (*Melanoides tuberculata*) to spring ecosystems of the Bonneville Basin, Utah. *Journal of Freshwater Ecology* 18:647-657.
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- Belk, M.C. 2001. Restoration of fish habitat in the Provo River: a multispecies approach (extended abstract). *Journal of the Idaho Academy of Science* 37:79-81.

- Smith, M.E., and M.C. Belk. 2001. Risk-assessment in western mosquitofish (*Gambusia affinis*): do multiple cues have additive effects? *Behavioral Ecology and Sociobiology* 51:101-107.
- Belk, M.C., M. Whitney, and G. B. Schaalje. 2001. Complex effects of predators: determining vulnerability of the endangered June sucker to an introduced predator. *Animal Conservation* 4:251-256.
- Johnson, J.B., and M.C. Belk. 2001. Predation environment predicts divergent life-history phenotypes among populations of the livebearing fish *Brachyrhaphis rhabdophora*. *Oecologia* 126:142-149.
- Kristine W. Wilson, and Mark C. Belk. 2001. Habitat characteristics of leatherside chub (*Gila copei*) at two spatial scales. *Western North American Naturalist* 61:36-42.
- Michael Whitney, and Mark C. Belk. 2000. Threatened fishes of the world: *Chasmistes liorus* Jordan, 1878 (Catostomidae). *Environmental Biology of Fishes* 57: 362.
- Jerald B. Johnson, and Mark C. Belk. 1999. Effects of predation on life-history evolution in Utah chub (*Gila atraria*). *Copeia* 1999: 948-957.
- Chris Walser, Mark C. Belk, and Dennis Shiozawa. 1999. Habitat use by leatherside chub (*Gila copei*) in the presence of predatory brown trout (*Salmo trutta*). *Great Basin Naturalist* 59: 272-277
- Mark C. Belk. 1998. Age and growth of June sucker (*Chasmistes liorus*) from otolith annuli. *Great Basin Naturalist*, 58: 390-392.
- Mark C. Belk. 1998. Predator-induced delayed maturity in bluegill sunfish (*Lepomis macrochirus*): variation among populations. *Oecologia*, 113: 203-209.
- Belk, M.C., and M.H. Smith. 1996. Pelage coloration in oldfield mice (*Peromyscus polionotus*), antipredator adaptation? *Journal of Mammalogy*, 77: 882-890.
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- Belk, M.C. 1995. Variation in growth and age at maturity in bluegill sunfish (*Lepomis macrochirus*, Rafinesque): genetic or environmental effects? *Journal of Fish Biology* 47:237-247.
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- Thurber, D.K., M.C. Belk, H.L. Black, C.D. Jorgensen, S.P. Hubbell, and R.B. Foster. 1993. Dispersion and mortality of colonies of the tropical ant *Paraponera clavata*. *Biotropica* 25:215-221.
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RECENT PRESENTATIONS

- Belk, Mark C. Antipredator responses in fish: a multifaceted approach to a dominant selective force. Invited Seminar, Tulane University, November 2015, New Orleans, Louisiana.
- Belk, Mark C., Elias Combs, Josh Rasmussen, Jeff Wesner, and R. Cary Tuckfield. Comparative demography of two small stream fishes in response to variable stream flow. Presented at the Northern Leatherside Chub Conservation Team annual meeting, November 2015, Salt Lake City, Utah.
- Maxwell, Madison, Jerry Johnson, and Mark C. Belk. Is what you eat more important than what's eating you? Top-down versus bottom-up effects on body shape in Utah chub, *Gila atraria*. Presented at the American Fisheries Society annual meeting, August 2015, Portland, Oregon.
- Belk, Mark C., Elias Combs, Josh Rasmussen, Jeff Wesner, and R. Cary Tuckfield. Comparative demography of two small stream fishes in response to variable stream flow. Presented at the American Fisheries Society annual meeting, August 2015, Portland, Oregon.
- Memmott, Taft, Ashlee Smith, Mark C. Belk, and Bruce Schaalje. Differences in the Importance of Size for Intrasexual Competition in Burying Beetles, *Nicrophorus marginatus*. Annual meeting of the Animal Behavior Society, June 2015, Anchorage, Alaska.
- Hull, Camille, Ashlee Smith, Curtis Creighton, and Mark Belk. Determination of the Timing of Mortality: Mitigation of a Mismatch Between Costs and Benefits of Reproduction Parental care. Annual meeting of the Animal Behavior Society, June 2015, Anchorage, Alaska.
- Gillis, Eric, Ashlee Smith, Mark C. Belk. Effects of Parental Size and Carcass Size on Fitness in *Nicrophorus marginatus*. Annual meeting of the Animal Behavior Society, June 2015, Anchorage, Alaska.
- Smith, Ashlee, Mark C. Belk, Curtis Creighton. Cost of post-hatching parental care in a burying beetle (*Nicrophorus orbicollis*). Annual meeting of the Animal Behavior Society, June 2015, Anchorage, Alaska.
- Belk, Mark C., Elias Combs, Josh Rasmussen, Jeff Wesner, and R. Cary Tuckfield. Comparative demography of two small stream fishes in response to variable stream flow. Presented at the Utah Chapter of the American Fisheries Society annual meeting, March 2015, Moab, Utah.
- Gleave, Weston, and Mark C. Belk. Food web within Fish Lake: are lake trout growing as large as they should? Presented at the Utah Chapter of the American Fisheries Society annual meeting, March 2015, Moab, Utah.
- Hull, Camille, Mehmet Cemal Oguz, Dennis Shiozawa, and Mark C. Belk. Internal parasites of a community of rockfish (*Sebastes* spp.) from southeastern Alaska waters. Presented at the Utah Chapter of the American Fisheries Society annual meeting, March 2015, Moab, Utah.
- Rambo, Matthew, Camille Hull, Ashlee Smith, Mehmet Cemal Oguz, and Mark C. Belk. Intestinal parasites of a community of stream fishes in central Utah. Presented at the Utah Chapter of the American Fisheries

- Society annual meeting, March 2015, Moab, Utah.
- Maxwell, Madison, Jerry Johnson, and Mark C. Belk. Is what you eat more important than what's eating you? Top-down versus bottom-up effects on body shape in Utah chub, *Gila atraria*. Presented at the Utah Chapter of the American Fisheries Society annual meeting, March 2015, Moab, Utah.
- Ashcroft, Kyle, and Mark C. Belk. Lost Creek salmonids. Presented at the Utah Chapter of the American Fisheries Society annual meeting, March 2015, Moab, Utah.
- Pitcher, Drew, and Mark C. Belk. Pike, perch, and walleye: a tangled web in Yuba reservoir. Presented at the Utah Chapter of the American Fisheries Society annual meeting, March 2015, Moab, Utah.
- Brooksby, Aaron, Dennis Shiozawa, and Mark C. Belk. Trophic Partitioning in Alaskan rockfish (genus *Sebastes*). Presented at the Utah Chapter of the American Fisheries Society annual meeting, March 2015, Moab, Utah.
- Smith, Ashlee, J. Curtis Creighton, and Mark C. Belk. Evidence of Reproductive Restraint in Male Burying Beetles. Presented at the Society for the Study of Evolution annual meeting, June 2014, Raleigh, North Carolina.
- Belk, Mark C. and Jeff Wesner. Does diet affect survival? Stream fish and stable isotopes. Presented at Annual Meeting of the Utah Chapter of American Fisheries Society. Price UT. 12-13 March 2014.
- Bird, Scott, Cemal Oguz, Mark C. Belk, Jerry Johnson. Differences in pelvic fin length represent sexual dimorphism in Utah Chub (*Gila atraria*). Presented at Annual Meeting of the Utah Chapter of American Fisheries Society. Price UT. 12-13 March 2014.
- Combs, Elias, Mark Belk, Cemal Oguz, Anna Marie Forrest. Survey of parasites in fishes of Lake Powell. Presented at Annual Meeting of the Utah Chapter of American Fisheries Society. Price UT. 12-13 March 2014.
- Hanson, Bret, Mark Belk, Dennis Shiozawa, Sterling Adams, Robert Beck, Elias Combs. Variation in age, growth, and isotopic and trophic niche in black rockfish (*Sebastes melanops*) from Southeast Alaska. Presented at Annual Meeting of the Utah Chapter of American Fisheries Society. Price UT. 12-13 March 2014.
- Lindley, Desiree, Jeff Wesner, Mark Belk. Morphometric variation in June Sucker (*Chasmistes liorus*) brood stock. Presented at Annual Meeting of the Utah Chapter of American Fisheries Society. Price UT. 12-13 March 2014.
- Rambo, Matthew, Roberto Cifuentes, Evelyn Habit, Mark C. Belk. Morphological variation of *Galaxias maculatus* in Lacustrine and Riverine Populations of Central-Southern Chile. Presented at Annual Meeting of the Utah Chapter of American Fisheries Society. Price UT. 12-13 March 2014.
- Belk, Mark C. Characterization of Mouth shape Phenotype in June Sucker

- Broodstock. Presented at June Sucker Recovery Implementation Program. 15 April 2014.
- Belk, Mark C. June Sucker Population Matrix Model. Presented at June Sucker Recovery Implementation Program. 15 April 2014.
- Belk, Mark C. Matrix Population model of June Sucker in Utah Lake with stochastic environmental variation. Presented at American Fisheries Society 2014 Western Division Annual Meeting. Mazatlan Mexico. 10 April 2014.
- Combs, Elias, and Mark Belk. Poster: "Survey of parasites in fishes of Lake Powell." Runner-up for Best Student Poster. Presented at American Fisheries Society 2014 Western Division Annual Meeting. Mazatlan Mexico. 10 April 2014.
- Jones, Allystair, and Mark Belk. Poster: "Are patterns of Terminal Investment general across species?" Presented at American Fisheries Society 2014 Western Division Annual Meeting. Mazatlan Mexico. 10 April 2014.
- Belk, MC, A Smith, JC Creighton. Evolution of biparental care as a response to sexual conflict in *Nicrophorus*. Society for the Study of Evolution annual meeting, June 2013, Snowbird, Utah
- Smith, A, JC Creighton, MC Belk, and N. Heflin. Differences in costs of reproduction between the sexes in *Nicrophorus orbicollis*. Society for the Study of Evolution annual meeting, June 2013, Snowbird, Utah
- Meyers, P, MC Belk, and JC Creighton. Variation in the cost of reproduction among burying beetles. Society for the Study of Evolution annual meeting, June 2013, Snowbird, Utah
- Laidlaw, CT, MC Belk, and JC Creighton. Variation in current versus future reproduction and carcass utilization between populations in a burying beetle. Society for the Study of Evolution annual meeting, June 2013, Snowbird, Utah
- Combs, E., MC Belk, E Habit, and C Sobenes. Ecology of *Galaxias platei* in isolation. Society for the Study of Evolution annual meeting, June 2013, Snowbird, Utah
- Jones, AD, and MC Belk. Predation and the terminal investment hypothesis: A comparative study. Society for the Study of Evolution annual meeting, June 2013, Snowbird, Utah
- Belk, MC and RC Tuckfield. Population matrix model for June sucker in a stochastic environment. Apr 2013, Utah chapter of the American Fisheries Society annual meeting. Page, Arizona
- Belk, MC and RC Tuckfield. Population matrix model for June sucker in a stochastic environment. Apr 2013 - June Sucker Annual Assessment Meeting, Salt Lake City, UT
- Belk, MC and JS Wesner. Spatial variation in the isotopic niche of freshwater fishes in the Bear River Drainage. Dec. 4, 2012, Annual meeting Northern Leatherside Chub Conservation Team. Salt Lake City, Utah.

Rhem, JC, PJ Meyers, MC Belk, and C Creighton. Temporal niche partitioning in two sympatric species of burying beetles. 7 Aug 2012 - Ecological Society of America - Portland, OR

Meyers, PJ, MC Belk and C Creighton. Differences in lifetime reproductive output on varying resource sizes in a burying beetle. 8 Aug 2012 - Ecological Society of America - Portland, OR

Laidlaw, CT, MC Belk and C Creighton. Variation in current versus future reproduction and tolerance to over-reproduction across a latitudinal cline in a burying beetle. 8 Aug 2012 - Ecological Society of America - Portland, OR

Wesner, JS, EJ Billman and MC Belk. Multiple predators indirectly alter community assembly across ecological boundaries. 9 Aug 2012 - Ecological Society of America - Portland, OR

Segura, ML, PJ Meyers, MC Belk and C Creighton. Effects of male age and experience on bi-parental reproductive output and allocation in a burying beetle. 10 Aug 2012 - Ecological Society of America - Portland, OR

Tuckfield, RC, MC Belk and JS Wesner. Right-wing and leftist views of modeling community complexity. 10 Aug 2012 - Ecological Society of America - Portland, OR

Belk, MC and JS Wesner. Spatial variation in the isotopic niche of freshwater fishes in the Bear River Drainage. 23 May 2012 - Society for Freshwater Science - Louisville, KY

Wesner, JS, EJ Billman and MC Belk. Multiple predators indirectly alter community assembly across ecological boundaries. 23 May 2012 - Society for Freshwater Science - Louisville, KY

Belk, MC and JS Wesner. Spatial variation in the isotopic niche of freshwater fishes in the Bear River Drainage, Great Basin, Utah. 16 May 2012 - Wyoming Landscape Conservation Initiative - Rock Springs, WY

Belk, MC and JS Wesner. Morphometric variation in June sucker brood stock. 11 Apr 2012 - June Sucker Annual Assessment Meeting, Salt Lake City, UT

Mattson, E, JS Wesner and MC Belk. Morphometric variation in June sucker brood stock. 27-28 Mar 2012 - Utah Chapter of the American Fisheries Society Meeting - Bullfrog, UT

Monk, S, MC Belk and EJ Billman. Natural substrate best alternative for native Utah fish passage at culverts. 27-28 Mar 2012 - Utah Chapter of the American Fisheries Society Meeting - Bullfrog, UT

Tippetts, A, JS Wesner and MC Belk. Habitat relationships among biodiversity indicators and co-occurring species are unrelated in a freshwater fish community. 27-28 Mar 2012 - Utah Chapter of the American Fisheries Society Meeting - Bullfrog, UT

Belk, MC and JS Wesner. Spatial variation in the isotopic niche of freshwater fishes in the Bear River Drainage. 27-28 Mar 2012 - Utah Chapter of the American Fisheries Society Meeting - Bullfrog, UT

- Wesner, JS and MC Belk. Habitat relationships among biodiversity indicators and co-occurring species are unrelated in a freshwater fish community. 15 Mar 2012 - Coordination Meeting Utah DNR - Provo, UT
- Segura, ML, JS Wesner and MC Belk. Spatial variation in the isotopic niche of freshwater fishes in the Bear River Drainage, Great Basin, Utah. 15 Mar 2012 - Coordination Meeting Utah DNR - Provo, UT
- Mattson, E, JS Wesner and MC Belk. Morphometric variation in June sucker brood stock. 15 Mar 2012 - Coordination Meeting Utah DNR - Provo, UT
- M. C. Belk, E. J. Billman, J. E. Rasmussen, K. Mock, and J. B. Johnson. Demography of southern leatherside chub in the presence and absence of an introduced predator. Utah Chapter of the American Fisheries Society Annual Meeting 2011. Salt Lake City, Utah.
- Billman, E. J., J. S. Wesner, and M. C. Belk. Aquatic and terrestrial factors affecting northern leatherside chub (*Lepidomeda copei*) in the Bear River Drainage, WY and UT. Utah Chapter of the American Fisheries Society Annual Meeting 2011. Salt Lake City, Utah.
- Wesner, JS, and MC Belk. Habitat relationships, indicator status, and preliminary stable isotope analysis of northern leatherside chub. Northern Leatherside Chub Conservation Team Meeting, Salt Lake City, UT. 6 Dec 2011.
- Belk, M.C., E.J. Billman, J. Rasmussen, K. Mock, and J.B. Johnson. Demography of southern leatherside chub in the presence and absence of an introduced predator. Joint Meeting of Ichthyologists and Herpetologists, July 2011, Minneapolis, Minnesota.
- Wesner, JS, and MC Belk. Habitat factors affecting a potential biodiversity indicator species, northern leatherside chub (*Lepidomeda copei*). North American Benthological Society Annual Meeting. Providence, RI. 26 May 2011
- Wesner, JS, MC Belk. Aquatic and terrestrial factors affecting a potential biodiversity indicator species, northern leatherside chub (*Lepidomeda copei*). Coordination Meeting – Utah Division of Wildlife Resources/Brigham Young University. Provo, UT. 9 March 2011.
- Belk, Mark C. and Jeff Wesner. Characterization of mouth shape phenotype in the captive brood stock of June sucker, *Chasmistes liorus*. June Sucker Annual Assessment Meeting, April 2011, Salt Lake City, Utah

JOHN DAVID BELL

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Birthdate: June 25, 1958
Birthplace: Salt Lake City, Utah

Marital Status: Married, three children

Address: Undergraduate Education
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Academic Record:

Brigham Young University, Provo, UT, B.S. Magna Cum Laude, Major: Zoology 1982
University of California, La Jolla, CA, Ph.D., Major: Physiology and Pharmacology 1987
University of Virginia, Charlottesville, VA NRSA Postdoctoral Fellow 1987–1990
Department of Pharmacology

Professional Experience:

Assistant Professor, Department of Zoology, Brigham Young University, Provo, Utah 1990–1996
Associate Professor, Department of Zoology, Brigham Young University, Provo, Utah, 1996–2002
Chair, Department of Zoology, Brigham Young University, Provo, Utah, 1998–2001
Associate Dean, College of Life Sciences, Brigham Young University, Provo, Utah, 2001–2008
Professor, Department of Physiology and Developmental Biology, Brigham Young University, Provo, Utah, 2002–present
Dean, Undergraduate Education, Brigham Young University, Provo, Utah, 2008–2015
Vice President, Academics, Brigham Young University–Hawaii, Laie, Hawaii, 2015-present

Honors:

Spencer W. Kimball Scholarship, Brigham Young University (four year full scholarship)
Pharmaceutical Manufacturers Association Foundation (predoctoral fellowship in pharmacology/toxicology awarded 1985 for thesis project)
National Service Research Award Individual Postdoctoral Fellowship (NIH award GM-11838, awarded 1988)
Young Scholar Award, Brigham Young University (three year salary and research award, awarded 1993)
Outstanding Faculty, Department of Zoology, Brigham Young University, 1994–1995
Teacher of the Year for Zoology (awarded by the Student Alumni Association), 1994
Teacher of the Year for Zoology (awarded by the Student Alumni Association), 1995

Karl G. Maeser Distinguished Teaching Award, Brigham Young University, 1996
Teacher of the Year for Zoology (awarded by the Student Alumni Association), 1997
Outstanding Faculty, Department of Physiology and Developmental Biology, Brigham Young University, 2008

Professional Societies:

Biophysical Society, 1990–present
American Association for the Advancement of Science, 1999–present
New York Academy of Sciences, 1992–1995

Teaching Experience:

Review lectures in biochemistry and organ physiology/pharmacology to medical students at the University of California, San Diego, 1983–1985
Course lectures and review sessions in pharmacology to nursing students at the University of Virginia, 1987–1990
Courses in general biology, physiology, pharmacology, cellular biology, and scientific reasoning in the College of Biology and Agriculture at Brigham Young University, 1990–present

External Research Support:

1-R15-GM44235; National Institutes of Health; Mechanisms of Phospholipase A₂ Regulation. Total Costs: \$98,736. 1990–1993.
1-R01-GM49710; National Institutes of Health; Biochemistry of the Activation of Phospholipase A₂. Total Costs: \$337,033. 1993–1997.
P116B980586; U.S. Dept. of Education; Development of Computer Simulations of Biological Research. Total Costs: \$181,914. 1998–2002.
MCB9904597; National Science Foundation; Erythrocyte membrane structure and phospholipase A₂ activity. Total Costs: \$274,051. 1999–2003.
MCB9904597 supplement; National Science Foundation; Erythrocyte membrane structure and phospholipase A₂ activity. Total Costs: \$10,000. 2000.
MCB9904597 ROA supplement; National Science Foundation; Erythrocyte membrane structure and phospholipase A₂ activity. Total Costs: \$14,000. 2000.
P116B041238; U.S. Dept. of Education; Disseminating a Package of Best Practices for Teaching and Assessing Analytical Reasoning in Biology. Total Costs: \$526,695. 2004–2008.
1-R15-GM73997; National Institutes of Health; Action of Phospholipase A₂ on Apoptotic Cells. Total Costs: \$225,000. 2005–2009.

Publications:

Articles:

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2. Bell, J.D., Buxton, I.L.O., and Brunton, L.L. (1985) Enhancement of adenylate cyclase activity in S49 lymphoma cells by phorbol esters. *J. Biol. Chem.* 260, 2625–2628.
3. Bell, J.D., and Brunton, L.L. (1986) Enhancement of adenylate cyclase activity in S49 lymphoma cells by phorbol esters, withdrawal of GTP-dependent inhibition. *J. Biol. Chem.* 261, 12036–12041.
4. Bell, J.D., and Brunton, L.L. (1987) Multiple effects of phorbol esters on hormone-sensitive adenylate cyclase activity in S49 lymphoma cells. *Am. J. Physiol.* 252, E783–E789.
5. Bell, J.D., and Biltonen, R.L. (1989) Thermodynamic and kinetic studies of the interaction of vesicular dipalmitoylphosphatidylcholine with *A. piscivorus piscivorus* phospholipase A₂. *J. Biol. Chem.* 264, 225–230.
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9. Bell, J.D., and Biltonen, R.L. (1991) Activation of phospholipase A₂ on lipid bilayers. *Methods Enzymol.* 197, 249–258.
10. Biltonen, R.L., Lathrop, B.K., and Bell, J.D. (1991) Thermodynamics of phospholipase A₂-ligand interactions. *Methods Enzymol.* 197, 234–248.
11. Bell, J.D., and Biltonen, R.L. (1992) Molecular details of the activation of soluble phospholipase A₂ on lipid bilayers: comparison of computer simulations with experimental results. *J. Biol. Chem.* 267, 11046–11056.
12. Bell, J.D., Brown, S.D., and Baker, B.L. (1992) Reversibility of the activation of soluble phospholipase A₂ on lipid bilayers: implications for the activation mechanism. *Biochim.*

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15. Bell, J.D. and Heninger, R.W. (1993) A computer method for simulating depolarization and repolarization of heart ventricles for use in teaching the electrocardiogram. *Annals New York Acad. Sci.* 701, 96–98.
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Pyricularia pubera with dipalmitoylphosphatidylcholine large unilamellar vesicles. *Biochemistry* 36, 2860–2866.

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Publications:

Henkemeyer MJ, Bennett RL, Gertler FB, and Hoffmann FM. DNA sequence, structure, and tyrosine kinase activity of the *Drosophila melanogaster* Abelson proto-oncogene homolog. *Mol Cell Biol* 8:843-853, 1988.

Bennett RL, and Hoffmann FM. Increased levels of the **Drosophila** Abelson tyrosine kinase in nerves and muscles: subcellular localization and mutant phenotypes imply a role in cell-cell interactions. *Development* 116:953-966, 1992.

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Lewis DL, DeCamillis M, and Bennett RL. Distinct roles of the homeotic genes Ubx and abd-A in beetle embryonic abdominal appendage development. *PNAS* 97:4504-4509, 2000.

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TEACHING EXPERIENCE

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Biology 100: General Biology for Non-majors
Native American Education 101: Native American Contributions in Engineering, Medicine, Science, and Agriculture
Zoology 101: Biology of Man
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PUBLICATIONS

Black, H. L. 1968. Populations of small rodents in relation to grazing by cattle on foothill range lands. M.S. Thesis. University of Utah.

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- Black, H.L. Public awareness: wildlife workshops for elementary and secondary teachers. [Wildlife Issues Statement.] Findings and Recommendations for Resolving Utah Wildlife Issues. Report to Governor Michael O. Leavitt, Governor's Citizen Committee on Wildlife Issues. 47.
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- Jones, L.R., H.L. Black, C.M. White, N.P. Johnston, M.E. McGee, S.W. Donahue, and D.L. Eggett. 2010. Effects of calcium-loading on egg production in Ring-necked Pheasants. *Journal of Wildlife Management* 74:1295–1300.
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- Jones, L.R., H.L. Black, and C.M. White. 2012. Evidence for convergent evolution in gape morphology of the Bat Hawk (*Macheiramphus alcinus*) with swifts, swallows, and goatsuckers. *Biotropica* 44:386–393.

PAPERS AND POSTER PRESENTATIONS AT PROFESSIONAL MEETINGS

- 1971 Differential utilization of moths by the bats *Eptesicus fuscus* and *Lasiurus cinereus*. American Society of Mammalogists, Annual Meeting, College Station, TX. June.
- 1975 Precision in prey selection by the trident-nosed bat (*Cleotis percivali*). North American Symposium on Bat Research, Annual Meeting, Las Vegas, NV. October.
- 1976 Reproductive patterns in some Zambian bats in relation to food supply. American Society of Mammalogists, Annual Meeting, Albuquerque, NM. June.
- 1977 Behavior and ecology of the bat hawk (*Macheiramphus alcinus*). Symposium on African Birds of Prey, Pretoria, South Africa. September.
- 1980 Navajo livestock guarding dogs. Western Regional Coordinating Committee for Research on Predator Control, Annual Meetings, North Bend, Oregon. August.
- 1981 Training and care of Navajo livestock guarding dogs. Western Regional Coordinating Committee for Research on Predator Control, Twin Falls, ID. August.
- 1982 Coyote management by sheep-imprinted mongrel dogs. American Society of Mammalogists, Annual Meeting, Snowbird, Utah. June.
- 1982 Coyote deterrents: mixed-breed livestock protection dogs. Western Regional Coordinating Committee for Research on Predator Control, Annual Meeting, Waco, TX. August.
- 1985 Imprinting and livestock protection dogs. American Society of Mammalogists, Annual Meeting, Bangor, ME. June.
- 1987 Bats: an ecological opportunity and a force in the evolution of the bat kite. [Poster.] American Society of Mammalogists, Annual Meeting, Albuquerque, NM. June.
- 1987 Bats: an ecological opportunity and a force in the evolution of the bat kite. [Poster.] Raptor Research Foundation, Inc., Annual Meeting, Boise, ID.
- 1988 The LaSal Mountain bear population: a progress report. Central Mountains and Great Plains Section, The Wildlife Society, Annual Meeting, Ephraim, UT. August.
- 1989 Observations on a semi-isolated black bear population in Southeastern Utah. [Poster.] Eighth International Conference on Bear Research and Management, Victoria, British Columbia. February. (With S. Richardson, H. Frost, and J. Pederson).
- 1989 Home range comparison of breeding and non-breeding female black bears. Utah Chapter, Wildlife Society, Annual Meeting, Provo, UT. March. (With H. Frost and S. Richardson).
- 1989 Seasonal movements of a semi-isolated black bear population in response to ephemeral food resources. Utah Chapter, Wildlife Society, Annual Meeting, Provo, UT. March. (With S. Richardson, G. Ogborn and H. Frost).

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- 1989 Ants in the diet of black bears, *Ursus americanus*. Utah Chapter, Wildlife Society, Annual Meeting, Provo, UT. March. (With S. Richardson and H. Frost).
- 1989 Scanning Electron Microscope study of the mouthparts of *Paraponera clavata*. Utah Academy of Science, Arts, and Letters, Salt Lake City, UT. (With J. Whiting and C. Jorgensen).
- 1990 Population characteristics of black bears on an isolated mountain in Southeastern Utah. [Poster.] American Society of Mammalogists, Annual Meeting, Frostburg, MD. July. (With H. Frost and S. Richardson).
- 1992 Black bear field studies: to trap or to snare, that is the question. [Poster.] American Society of Mammalogists, Annual Meeting, Salt Lake City, UT. June. Also displayed at the Ninth International Bear Conference, Missoula, MT. February 1993. (With J. Auger, W. Paskett, and H.D. Smith).
- 1993 Viability and germinability of seeds from black bear scats collected in the Book Cliffs, Utah: implications for seed dispersal. Second Biennial Conference of Research on the Colorado Plateau, Flagstaff, AZ. October. (With J. Auger and S.E. Meyer).
- 1993 Black bears and seed dispersal: preliminary observations and hypotheses. [Poster.] International Union of Game Biologists XXI Congress, Halifax, Nova Scotia, Canada. August. Also displayed at the Fifth Western Black Bear Workshop, Provo, UT. February 1994. (With J. Auger, S. E. Meyer, and H. D. Smith).
- 1993 Black bears and seed dispersal: preliminary evaluation of bears as legitimate seed dispersers. American Society of Mammalogists, Annual Meeting, Bellingham, WA. June. (With J. Auger, S. E. Meyer, and H. D. Smith).
- 1993 The role of black bears in seed dispersal. Utah Chapter, Wildlife Society, Annual Meeting, St. George, UT. February.
- 1994 Viability and germinability of seeds from seven fleshy-fruited shrubs after passage through the black bear. [Poster and Published Abstract.] Proc. Fifth Western Black Bear Workshop, Provo, UT. February. (With J. Auger and S. E. Meyer). Also displayed at the Tenth International Conference on Bear Research and Management, Fairbanks, AK. July 1995.
- 1994 Auger, J., S. E. Meyer, H. L. Black, and H. D. Smith. Black Bears and Seed Dispersal: Preliminary Observations and Hypotheses. [Poster and published abstract.] 12th Eastern Workshop on Black Bear Research and Management, Gatlinburg, TN, 2–5 April 1994.
- 1994 An analysis of multiple paternity in the American black bear using RAPD DNA finger printing. [Poster and Published Abstract.] Proc. Fifth Western Black Bear Workshop, Provo, UT. February. (With H. K. Johnson, D.S. Rogers, and S. Woodward).
- 1994 Preliminary road track surveys of black bears in Utah. [Poster and Published Abstract.] Proc. Fifth Western Black Bear Workshop, Provo, UT. February. (With A.T. Young, W.P. Paskett, K.V. Young, M.A. Seid, and H.D. Smith).

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- 1995 Road track surveys of black bears in Utah. [Poster and Published Abstract.] Abstracts, Tenth International Conference on Bear Research and Management, Fairbanks, AK. July.
- 1996 Bats and boy scouts. [Paper and Published Abstract.] Four Corners Regional Bat Conference, Colorado Bat Society, Durango, CO. January. (With S. Haymond, M. Seid, and R.E. Sherwin).
- 1996 Lion-black bear interactions: a survey for participants. [Presentation, Survey, and Published Abstract.] Fifth Mountain Lion Workshop, Southern California Chapter of the Wildlife Society and California Department of Fish and Game. February. (With J. T. Flinders).
- 1997 Seid, M. A. and H. L. Black. The role of ants in the diet of the American black bear: colonies under rocks. Sixth Western Black Bear Workshop, Ocean shores, WA. May.
- 1997 Smith, R. V., M. C. Belk, and H. L. Black. How well can track shape be described in black bears? Sixth Western Black Bear Workshop, Ocean Shores, WA. May.
- 1997 Tolman, J. and H. L. Black. Reproductive characteristics of an east-central Utah population black bears. Sixth Western Black Bear Workshop, Ocean Shores, WA. May.
- 1997 Barnes, J., L. Harding, J. Reynolds, and H. L. Black. Interactions between black bears and other carnivores and scavengers: a survey of biologists and houndsmen. Sixth Western Black Bear Workshop, Ocean Shores, WA. May.
- 1998 Smith, R. V., M. C. Belk, and H. L. Black. A shape analysis of American black bear tracks. Eleventh International Conference on Bear Research and Management, Gatlinburg, TN. April.
- 1998 Gardner, R., H. L. Black, and H. D. Smith. Black bear behavior and movements: the role of trained hounds. Eleventh International Conference on Bear Research and Management, Gatlinburg, TN. April.
- 1998 Bunnell, S. T., and H. L. Black. Spring and early summer food habits of black bears on the East Tavaputs Plateau, Utah. Eleventh International Conference on Bear Research and Management, Gatlinburg, TN. April.
- 1999 Smith, R. V. and H. L. Black. Success and biases of live trapping black bears in Utah. Utah Chapter of the Wildlife Society, 1999 Annual Meeting. March.
- 1999 Black, H. L., S. Bunnell, L. Harding, and R.V. Smith. Black bear habitat use: ground-truthing with dogs. Utah Chapter of the Wildlife Society, 1999 Annual Meeting. March.
- 2000 Harding, L., H. L. Black and B. Bates. 2000. Prints in the dust: differential habitat utilization, movement patterns, and behavior of the American Black Bear from hound transects. 7th Western Black Bear Workshop. Coos Bay, Oregon. May 2–5.
- Heward, J. D., J. J. Akenson, M. G. Henjum, H. L. Black. Experimental Pursuit of Black Bears with Hounds. Seventh Western Black Bear Workshop. Coos Bay, OR. 2–5 May.

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- 2001 Black, H. L. and J. Heward. 2001. Barren bears: the summer from hell in the Book Cliffs. Annual Meeting Utah Chapter of Wildlife Society. St. George, UT.
- 2003 Black, H. L., J. Heward, and A. Palochak. 2003. Utah Black Bears: dispersal, homing, and long distance movements for food. Paper presented at the 8th Western Black Bear Workshop. Pray, Montana. 15–17 April.
- 2003 Heward, J. D., and H. L. Black. 2003. Trends in Utah's black bear harvest. Paper presented at the 8th Western Black Bear Workshop. Pray, Montana. 15–17 April.
- 2004 Shawcroft, T., B. J. Heward, J. Auger, and H. L. Black. Bear Den Necessities: Individual Bear Den Ranges as a Function of Home Range. Utah Chapter of The Wildlife Society Annual Meeting, Provo, UT, 4–6 February.
- 2004 Bell, A. R., J. Auger, L. A. Woolstenhulme, and H. L. Black. Black Bear Distribution in Utah as a Reflection of Hard and Soft Mast Availability. Utah Chapter of The Wildlife Society Annual Meeting, Provo, UT, 4–6 February.
- 2004 Auger, J., J. D. Heward, B. J. Heward, C. Frandsen, A. Johnson, and H. L. Black. 2004. Long-term Trapping of Utah Black Bears: Non-random Distribution of Captures and Conservation Implications. [Poster.] Fifteenth International Conference on Bear Research and Management. San Diego, CA, 9–13 February.
- 2004 Heward, B. J., J. D. Heward, J. Auger, and H. L. Black. Food Habits of Utah Bears: Three Studies and 1787 Scats Later. [Poster.] Fifteenth International Conference on Bear Research and Management. San Diego, CA, 9–13 February.
- 2004 Palochak, A., J. D. Heward, and H. L. Black. Cementum annuli patterns in Utah black bears: Accuracy and precision of cementum annuli for aging and reproduction, and tracking trends in annuli patterns. [Poster.] Fifteenth International Conference on Bear Research and Management. San Diego, CA, 9–13 February.
- 2004 Heward, J. D., B. J. Heward, H. L. Black, and C. R. McLaughlin Trends in Utah's bear harvest. [Poster.] Fifteenth International Conference on Bear Research and Management. San Diego, CA, 9–13 February.
- 2005 Auger, J., and H. L. Black. Reproductive Parameters of Black Bears on the East Tavaputs Plateau, Utah: 13 Years of Observations. Utah Chapter of the Wildlife Society Annual Meeting, Bryce Canyon, UT, 16–18 March 2005.
- 2005 McGee, M. E., J. Auger, H. L. Black, and S. W. Donahue. Cross-sectional and Whole Bone Structural Properties of Bear Femurs are not Compromised by Annual Periods of Disuse. [*Poster and Peer-reviewed abstract.*] Proceedings 2005 Summer Bioengineering Conference, June 22–26, Vail Cascade Resort & Spa, Vail, Colorado.
- 2005 Auger, J., and H.L. Black. Reproductive Parameters of Black Bears on the East Tavaputs Plateau, Utah: 13 Years of Observations. Utah Chapter of The Wildlife Society Annual Meeting, Bryce Canyon, UT. 16–18 March 2005.

- 2006 McGee, M. E., D. L. Miller, A. J. Maki, J. Auger, H. L. Black, O. L. Nelson, C. T. Robbins, and S. W. Donahue. Cortical Bone Porosity, Mechanical Properties, and Cross-sectional Properties Do Not Show Loss During Disuse (Hibernation) or with Age in Grizzly and Black Bear Femurs. **[Poster and published, peer-reviewed abstract.]** 52nd Annual Meeting of the Orthopaedic Research Society, Chicago, Illinois. 19–22 March 2006.
- 2006 Black, H.L., J. Auger, J. Heward, and K. Bunnell. Differential Fitness in Female American Black Bears: Management Implications. Utah Chapter of The Wildlife Society Annual Meeting, Moab, UT, 1–3 March 2006. Also presented at the 9th Western Black Bear Workshop, Raton, NM. 19–22 April 2006.
- 2006 Billings, H., E. Olson, J. Auger, B. Roeder, H. Black, and K. Hatch. Isotopic analysis of Utah black bear diets: research questions and implications *[poster]*. Utah Chapter of The Wildlife Society Annual Meeting, Moab, UT. 1–3 March 2006.
- 2007 Martin, C.F., J. Auger, H.L. Black, C.R. Nelson, C.L. Jorgensen, and L.W. Morrison. Spatial distribution of ant species on the islands of Hawaii *[poster]*. 1st Annual International Pacific Invasive Ant Conference, Kona, HI. 22–25 May 2007.
- 2007 Auger, J., H.L. Black, J. Heward, B. Heward, and L.R. Allred. Status of the dark kangaroo mouse in Utah. Utah Chapter of The Wildlife Society Annual Meeting, Moab, UT. 28 February–2 March 2007.
- 2007 Hatch, K.A., B.L. Roeder, J. Auger, H.L. Black, and K.D. Bunnell. Effects of habitat, age, and sex on black bear carnivory: a stable isotope approach **[published abstract]**. Society for Integrative and Comparative Biology 2007 Annual Meeting, Phoenix Convention Center, Phoenix, AZ. 3–7 January 2007. *Integrative and Comparative Biology* 46 (Supp. 1):E57.
- 2008 McGee, M.E., L.N. Barlow, K.J. Simoni, S.J. Wojda, J. Auger, H.L. Black, S.W. Donahue. Post-hibernation black bears (*Ursus americanus*) do not demonstrate cortical bone loss compared to pre-hibernation bears despite 6 months of disuse **[published, peer-reviewed abstract]**. North American Congress on Biomechanics (NACOB), University of Michigan, Ann Arbor, MI. 5–9 August 2008.
- 2008 Haug, A.S., J. Auger, J. Heward, K. Bunnell, and H.L. Black. The dark kangaroo mouse in Beryl, Utah: a desert of Eden. Utah Chapter of The Wildlife Society Annual Meeting, Springdale, UT. 30 January–1 February 2008.
- 2008 Black, H.L., J. Auger, Meghan E. McGee, Danielle L. Miller, Seth Donahue, and Kevin Bunnell. Dem dens and dem bones. Utah Chapter of The Wildlife Society Annual Meeting, Springdale, UT. 30 January–1 February 2008.
- 2009 McGee-Lawrence, M.E., S.J. Wojda, L. Barlow, A.B. Castillo, O. Kennedy, J. Auger, H. Black, O. Lynne Nelson, C.T. Robbins, and S.W. Donahue. Grizzly bears (*Ursus arctos horribilis*) and black bears (*Ursus americanus*) prevent trabecular bone loss during disuse (hibernation) **[published, peer-reviewed abstract]**. 2009 Summer Bioengineering Conference, Resort at Squaw Creek, Lake Tahoe, CA. 17–21 June 2009.

- 2009 Buckmann, R.S., B.H. Gale, M.K. Wilson, K.A. Hatch, B.L. Roeder, S.T. Bunnell, J. Auger, and H.L. Black. The correlation between gross fecal analysis of archived black bear scats and isotopic signatures [*poster, published abstract*]. 10th Western Black Bear Workshop, Reno, NV. 18–22 May 2009. *Western Black Bear Workshop 10:195*.
- 2009 Black, H.L., J.D. Heward, and J. Auger. To tree or not: age-related parental investment strategies in adult female black bears. Utah Chapter of The Wildlife Society Annual Meeting, Bryce Canyon, UT. 11–13 March 2009.
- 2009 Walker, R., A. Haug, L. Woolstenhulme, H. Black, J. Auger, and S. Petersen. The dark kangaroo mouse: *Microdipodops megacephalus*, an endemic species to North America [*poster*]. Society for Range Management, 62nd Annual Meeting, Albuquerque, NM. 8–12 February 2009.
- 2009 Haug, A., J. Auger, H.L. Black, B.R. McMillan, and R.T. Larsen. The correlation between the diversity of nocturnal granivorous rodents and the relative abundance of the dark kangaroo mouse, *Microdipodops megacephalus* [*poster*]. Department of Plant and Wildlife Sciences Graduate Student Research Conference.
- 2009 McMillan, B.R., A. Haug, J. Auger, and H.L. Black. Current status and interspecific associations of *Microdipodops megacephalus* (the dark kangaroo mouse) in Utah. 89th Annual Meeting of the American Society of Mammalogists, Fairbanks, AK. 24–28 June 2009.
- 2010 Black, H.L., J. Heward, and J. Auger. The hidden, periodic patterns of reproduction in black bears: management implications. Utah Chapter of The Wildlife Society Annual Meeting, Moab, UT. 17–19 March 2010.
- 2012 Miller, J., T.S. Smith, J. Auger, and H.L. Black. The post-denning activities of the American black bear (*Ursus americanus*) in Utah. 11th Western Black Bear Workshop, Coeur d’Alene, ID. 21–24 May 2012.
- 2012 Black, H.L., J. Auger, J.D. Heward, and L.E. Harding. A bear for the public: visitors and their management at dens. 11th Western Black Bear Workshop, Coeur d’Alene, ID. 21–24 May 2012.

PROFESSIONAL GRANTS

- 1976 Artificial Manipulation of Insectivorous Bat Populations: Roost Box Studies. College of Biology and Agriculture Grant.
- 1977 The Bat Hawk: A Precarious Predator. Paper presented at the African Predatory Bird Symposium, Pretoria, South Africa. International Travel Grant from the College of Biology and Agriculture.
- 1977 Artificial Manipulation of Insectivorous Bat Populations: Roost Box Studies. Phase two. College of Biology and Agriculture Grant.
- 1978 Native American Contributions in Science, Medicine, and Agriculture. New course research. College of General Studies.

- 1979 Canopy Fogging Project, Panama. Intercollegiate Project (Harvard, Cornell, Illinois, and BYU). College of Biology and Agriculture and University Research Committee.
- 1980 Navajo Livestock Protection Dogs. Department of Multicultural Education.
- 1981 Mixed-breed Livestock Protection Dogs. U.S. Department of Agriculture Competitive Grant No. 58-9-AHZ-1-572, \$20,000.
- 1987 Population Dynamics of the LaSal Mt. Black Bears, Utah Division of Wildlife Resources. \$14,500.
- 1988 Population Dynamics of the LaSal Mt. Black Bears, Utah Division of Wildlife Resources. \$10,000.
- 1989 Population Dynamics of the LaSal Mt. Black Bears, Utah Division of Wildlife Resources. \$10,000.
- 1990 Population Dynamics of the LaSal Mt. Black Bears, Utah Division of Wildlife Resources and Forest Service, \$14,000.
- 1991 Population Dynamics of Book Cliff Black Bears, Utah Division of Wildlife Resources and Bureau of Land Management, \$27,000.
- 1992 Population Dynamics of Book Cliff Black Bears, Utah Division of Wildlife Resources and Bureau of Land Management, \$27,000.
- 1992 Black Bears of the Ute Indian Lands (Hill-Creek Extension), \$14,500.
- 1993 Population Dynamics of Book Cliff Black Bears, Utah Division of Wildlife Resources and Bureau of Land Management, \$27,000.
- 1993 Black Bears of the Ute Indian Lands (Hill-Creek Extension), \$3,000.
- 1994 Population Dynamics of Book Cliff Black Bears, Utah Division of Wildlife Resources and Bureau of Land Management, \$27,000.
- 1995 Population Dynamics of Book Cliff Black Bears, Utah Division of Wildlife Resources and Bureau of Land Management, \$27,000.
- 1996 Population Dynamics of Book Cliff Black Bears, Utah Division of Wildlife Resources and Bureau of Land Management, \$27,000.
- 1997 Population Dynamics of Book Cliff Black Bears, Utah Division of Wildlife Resources and Bureau of Land Management, \$27,000.
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- 2001 Population Dynamics of Book Cliff Black Bears, Utah Division of Wildlife Resources and Bureau of Land Management, \$27,000.
- 2002 Population Dynamics of Book Cliff Black Bears, Utah Division of Wildlife Resources and Bureau of Land Management, \$27,000.
- 2003 Population Dynamics of Book Cliff Black Bears, Utah Division of Wildlife Resources and Bureau of Land Management, \$27,000.
- 2004 Reproduction of Female Black Bears on the East Tavaputs Plateau, Utah Division of Wildlife Resources, \$4173.
- 2004 Distribution of Small Mammals in the Eastern Great Basin Desert of Utah with Special Emphasis on the shrew *Sorex preblei* and *Microdipodops megacephalus*, Utah Division of Wildlife Resources, Endangered Species Mitigation Fund, \$25,428.
- 2005 Reproduction of Female Black Bears on the East Tavaputs Plateau, Utah Division of Wildlife Resources, \$4173 and \$11,520.
- 2005 Distribution of Small Mammals in the Eastern Great Basin Desert of Utah with Special Emphasis on the shrew *Sorex preblei* and *Microdipodops megacephalus*, Utah Division of Wildlife Resources, Endangered Species Mitigation Fund, \$27,428.

MASTERS STUDENTS AND THESIS TITLES

Programs Completed:

- Thurrow, T.L. 1979. Ecology and behavior of the gymnogene.
- Thurber, D.K. 1988. Patterns of dispersion and mortality of the tropical ant Paraponera clavata.
- Frost, H.C. 1990. Population and reproduction characteristics of black bears on an isolated mountain in Southeastern Utah.
- Ogborn, G.L. 1990. Ants (Formicidae) in the diet of American black bears (Ursus americanus) in Southeastern Utah.
- Richardson, W.S. 1991. Habitat selection and feeding ecology of black bears in Southeastern Utah.

- Auger, J. 1994. Viability and germination of seeds from seven fleshy-fruited shrubs after passage through the American black bear (*Ursus americana*).
- Johnson, H. 1994. An analysis of multiple paternity in the American black bear using RAPD DNA finger printing.
- Young, A.T. 1995. Black bear behavior and population structure as revealed by road track surveys.
- Westwood, S. C. 1996. Loss of Bone Mass with Aging and Femoral Sexual Dimorphism in the American Black Bear (*Ursus americanus*).
- Hartvigsen, D. M. 1996. Black Bear Denning Characteristics in Two Utah Populations.
- Tenney, L. A. 1996. Home Range in Two Utah Black Bear Populations.
- Seid, M. A.. 1997. Ant Colonies Under Rocks as a Food Source for Black Bears (*Ursus americanus*).
- Tolman, J. 1998. A Comparison of Reproductive and Habitat Characteristics of Two Utah Black Bear Populations.
- Harding, L. E. 2000. Differential Habitat Use, Behavior, and Movements of Black Bears on the East Tavaputs Plateau, Utah.
- Bunnell, S. T. 2000. Spring and Summer Diet and Feeding Behavior of Black Bears on the East Tavaputs Plateau, Utah.
- Smith, R. V. 2000. Live-Trapping Success and Associated Biases for East Tavaputs Plateau Black Bears.
- Palochak, A. 2004. Cementum Annuli Patterns in Utah Black Bears: Accuracy and Precision of Cementum Annuli for Aging and Reproduction, and Tracking Trends in Annuli Patterns.
- Heward, J. D. 2004. Trends in Utah's Black Bear Harvest.

PROFESSIONAL SERVICE (PRESENT TO PAST)

Brigham Young University Committees and Assignments:

Advisor, Bioag Student Council, College of Biology and Agriculture
 Chair, Endowment Committee, Department of Zoology
 Division Coordinator, Ecology and Systematics, Department of Zoology
 Curriculum Supervisor, Department of Zoology
 Faculty Advisory Council, Brigham Young University
 Chair, Ad Hoc Committee for developing mission statement, Monte L. Bean Life Sciences Museum
 Member, Wildlife Collecting and Importing Committee, College of Biology and Agriculture

Other Universities, Agencies, and Societies:

President, Utah Chapter of The Wildlife Society, 2004
 Member, Regional Advisory Council, Central Region, Utah Division of Wildlife Resources,
 1994–1996
 Member, Governor’s Citizen Committee on Wildlife Issues, 1995
 Sponsored the Fifth Western Black Bear Workshop, BYU, Provo, Utah, February, 1994; 69
 participants from the Western U.S., Canada, and Mexico
 Current Society Membership: Bat Conservation International, International Bear Association
 Past Society Membership: American Society of Mammalogists, Society of Conservation Biology
 Resolutions and Membership Committees, American Society of Mammalogists

Editorial Work:

Editorial Board, The Great Basin Naturalist, 1980–1987
 Reviewed articles for:
 Biotropica
 Great Basin Naturalist
 John Wiley and Sons, Inc.
 Journal of Mammalogy
 The Southwestern Naturalist
 Wadsworth Publishing Co.
 National Science Foundation [proposals]
 U.S. Department of Agriculture [proposals]
 Wildlife Society Bulletin

COMMUNITY SERVICE (PRESENT TO PAST)

Cub Master, Boy Scouts
 Chair, Local Ward Boy Scout Committee, 1995–1997
 Director, Mammal Merit Badge, Brigham Young University Annual Merit Badge Pow Wow (150–180
 scouts), 1994–1998
 Co-director, Mapleton Civic Chorale, 1994–1995
 Co-director, College of Biology and Agriculture Convocation Choir, 1990, 1992, 1993

Public Awareness and Education Presentations (1996–1993):

From 1988 to the present, scout troops, wildlife professionals, church groups, students from other
 academic institutions, and interested citizens have visited our black bear study areas to participate
 in denning or trapping projects. Approximately 100 individuals per year have visited the bear
 project since its inception.

Invited Lecturer: Utah black bears. Payson High School Biology-Special Education class, 27 March
 1996. Lori H. Vance, Teacher.

Invited Lecturer: Black bears in Utah. Biology 107R/70R, Principles of Wildlife Ecology and
 Conservation, University of Utah, October 1993, 1994, 1995. Dr. Fred Montague, Professor.

Invited Presenter: Real life spooks and goblins. Mapleton Elementary School, 31 October 1995. Kathleen Olsen, Teacher. Also presented at American Fork Elementary School.

Invited Presenter: Some wild, wild animals of Zambia! (With D. Black). Mapleton Elementary School, 25 January 1995. CeAnne Whitehead, Teacher.

Presenter: Wildlife biology as a career. (With J. Auger). Springville High School, 21 March 1994. Carolyn Jones, Coordinator.

Presenter: Black bears in theory and practice. Botany and Range Science Seminar Series, BYU, 6 January 1994.

Invited Lecturer: Bats are for real. Pleasant Grove Elementary School, 29 October 1993. Dana Waltous, Teacher.

Presenter: Bearing bears. Biology Seminar Series, BYU, 28 October 1993.

Invited Lecturer: Black bears. (With J. Auger). Campground Program, Heber Ranger District, Forest Service, 7 August 1993. Julie Jensen, Coordinator.

Participant: Yellowstone Grizzly Foundation, 1993 Summit, Jackson Hole, Wyoming, 10-12 June 1993.

Invited Presenter: Bats. Project Wild Workshop, Utah Division of Wildlife Resources, Lytle Ranch, St. George, Utah, 15-17 April 1993.

Invited Presenter: Bats and Math, Math and Bats. Utah Valley State College Math Department Production. [Video.] Program seen on KUED, Channel 9, and BYU Cable Channel 40. Lori Palmer, Coordinator.

Invited Paper: Black bear research in the Book Cliffs of Utah. Emerging Values of Wildlife Conference, Utah Wilderness Society, 13 March 1993. Dick Carter, Coordinator.

Joint Session Moderator: "Different Perspectives on Traditional Fish and Wildlife Management in a Changing World." Utah Chapter, Wildlife Society, Annual Meeting, 24-26 February 1993. Jordan C. Pederson (UDWR), Coordinator.

Invited Lecturer: Bears and bear research at BYU. (With J. Auger) Wildlife Biology class, Snow College, 6 February 1993.

Invited Presenter: Bears. North Elementary Kindergarten, Heber, Utah. Debbie Townley, Coordinator.

Seminar: Black bears of Utah: seed dispersal, age structure and other gems. (With J. Auger, H. Johnson, A. Young, and W. Paskett). Zoology Seminar Series, BYU, 4 February 1993.

Invited Presenter: Bats. Two elementary classes, Salt Lake Institute for Learning. Presentation to two elementary classes, 7 January 1993. Michelle Biery, Coordinator.

Media Releases (1996–1992):

“Getting the bear facts.” Doug Miller, Outdoors, KSL-TV, March, 1996

“Bears.” Reece Stein, Sports Reporter, KUTV, 16-17 March 1994

"BYU Research Team Gets Bear Facts." Vernal Express, Vernal, Utah, 17 March 1993

"Black Bear Research." (With J. Auger and W. Paskett). Backcountry Magazine, Brian Brinkerhoff, Radio Editor, Provo, Utah, 10 January 1993

"BYU Students Study Bear Population." Salt Lake Tribune, Salt Lake City, 6 July 1992

"Wildlife to Reign in Book Cliffs." Deseret News, Salt Lake City, Utah, 4 July 1992

"Coup of the Century." The Herald Journal, Logan, Utah, 3 July 1992

"Utah's Wild Turkey." Pamphlet developed by the Utah Wildlife Initiative, Wild Turkey Committee.
Jay Roberson, Coordinator

"Utes, BYU join forces on bear study." Deseret News, Salt Lake City, Utah, 4 July 1992

CURRICULUM VITAE

Don D. Bloxham

Sources:

Pub Med Search, Bloxham DD: <http://www.ncbi.nlm.nih.gov/pubmed>

<http://lsmagazine.byu.edu/Issues/fall2006/steppingdown.aspx>

<http://magazine.byu.edu/article/college-updates-11/>

[https://sites.lib.byu.edu/byuorg/index.php/Brigham_Young_University._Dept._of_Biology_\(1985-2003\)](https://sites.lib.byu.edu/byuorg/index.php/Brigham_Young_University._Dept._of_Biology_(1985-2003))

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Education:

BS, Idaho State University, 1967

MS, Idaho State University, 1969

PhD, Louisiana State University, 1973

Employment:

Assistant Professor of Medicine, Director , Clinical Pharmacology Hemodynamics Laboratory, Case Western University, 1973-1978

Faculty Member and Director, Health Professions Office, Brigham Young University, 1978-2006

Co-director with Richard Tolman, Department of Biology, Brigham Young University, 1993-2003

Teaching:

Dental Techniques

Preview into Medicine

Clinical Observations in Pre-dentistry

Clinical Observations in Medicine

Principles of Physiology

Preview into Optometry

Preview into Dentistry

Honors:

Honorary doctor of science degree by the Kirksville College of Osteopathic Medicine , 2003

Publications:

Goetz KL, Bond GC, Bloxham DD. Atrial receptors and renal function. *Physiol Rev* 55:157-205, 1975.

Goetz KL, Bloxham DD, Bond GC, Sharma JN. Persistence of the renal response to atrial tamponade after cardiac denervation. *Proc Soc Exp Biol Med* 152:423-427, 1976.

Wang BC, Bloxham DD, Goetz KL. Effect of dipivalyl derivatives of catecholamines on cardiovascular function in the conscious dog. *J Pharmacol Exp Ther* 203:442-448, 1977.

Reiner NE, Bloxham DD, Thompson WL. Nephrotoxicity of gentamicin and tobramycin given once daily or continuously in dogs. *J Antimicrob Chemother* 4 Suppl A:85-101, 1978.

Powell SH, Thompson WL, Luthe MA, Stern RC, Grossniklaus DA, Bloxham DD, Groden DL, Jacobs MR, DiScenna AO, Cash HA, Klinger JD. Once-daily vs. continuous aminoglycoside dosing: efficacy and toxicity in animal and clinical studies of gentamicin, netilmicin, and tobramycin. *J Infect Dis* 147:918-32, 1983.

CURRICULUM VITAE

Gary M. Booth

Source:

Science Citation Index for Booth GM

Search on BYU Website for Gary M. Booth

<http://lsmagazine.byu.edu/Issues/Spring2015/Retirees.aspx>

UA 1195, Box 2, Folder 15, Department of Zoology Records, L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Education:

AS, Zoology, College of Eastern Utah, 1961

BS, Entomology, Utah State University, 1963

MS, Entomology, Utah State University, 1966

PhD, Entomology, University of California, Riverside, 1969

Training in Environmental Toxicology, University of Illinois, 1969-1970

Employment:

Research Assistant, Entomology, Utah State University, 1963-1966

PHS Trainee, Entomology, University of California, Riverside, 1966-1969

Research Associate, Department of Entomology, University of Illinois, 1969-1972

Assistant Professor of Entomology, University of Illinois, 1970

Assistant Entomologist, Illinois Natural History Survey, 1971

Assistant Professor of Zoology, Brigham Young University, 1972

Associate Professor of Zoology, Brigham Young University, 1973-1978

Professor of Zoology, Brigham Young University, 1978-2015

Teaching:

Introduction to Biology

Economic Entomology

Comparative Toxicology

Introduction to Entomology

Elementary Human Physiology

Animal Diversity

Toxicology
Environmental Biology

Honors and Awards:

David O. McKay Fellowship in Teaching and Education
Alcuin Fellowship, Brigham Young University, 1994
Distinguished Service Award in biological science from the Utah Academy of Arts and Sciences, 1997
General Education Professorship, Brigham Young University, 1999
John Topham And Susan Redd Butler BYU Faculty Fellowship, 2007
Maeser Excellence in Teaching Award, Brigham Young University, 2009
SENSOR Leadership Fellow, 2008-2009
Phi Eta Sigma Faculty Recognition Award, Brigham Young University, 2010
William E. Bennett Award for Extraordinary Contributions to Citizen Science, 2014

Publications:

Booth GM. Use of uric acid analysis to evaluate alfalfa seed chalcid infestation in alfalfa seed. *Ann Entomol Soc Amer* 62:1379-1382, 1969.

Booth GM, Metcalf RL. Histochemical evidence for localized inhibition of cholinesterase in the house fly. *Ann Entomol Soc Amer* 62:197-204, 1970.

Booth GM, Metcalf RL. Phenylthioacetate: A useful substrate for the histochemical and colorimetric detection of cholinesterase. *Science* 170:455-457, 1970.

Booth GM, Whitt GS. Histochemical specificity of cholinesterases to phenylthioacetate in differentiated neural tissues of insects and teleosts. *Longman Group Ltd (Great Britain)* 2:521-528, 1970.

Whitt GS, Booth GM. Localization of lactate dehydrogenase activity in the cells of the fish (*Xiphophorus helleri*) eye. *J Exp Zool* 174:215-224, 1970.

Booth GM, Connor J, Kitzmiller JB. Electrophoresis of esterases in the mosquito, *Anopheles punctipennis*. *Am Zool* 11:205, 1971.

Yu CC, Booth GM. Inhibition of choline acetylase from the house fly (*Musca domestica*) and mouse. *Life Sci* 10:337-347, 1971.

Booth GM. New insecticide developments on the drawing board. *Twenty-fourth Illinois Custom Spray Operator's Training School Bull*, 34-35, 1972.

Booth GM, Metcalf RL. The histochemical fate of paraoxon in the cockroach (*Periplaneta americana*) and honey bee (*Apis mellifera*) brain. *Israel J Entomol* 7:143-156, 1972.

Cho P, Booth GM, Davenport R, Whitt GS. Electrophoretic and histochemical analysis of esterase synthesis in the ovariole of the milkweed bug *Oneopletus fasciatus* (Dall.). *Wilhelm Rous Archiv* 170:209-220, 1972.

Yu CC, Metcalf RL, Booth GM. Inhibition of acetyl-cholinesterase from mammals and insects by carbofuran and its related compounds and their toxicities toward these animals. *J Ag Fd Chem* 20:923-926, 1972.

Booth GM, Connor J, Metcalf RA, Larsen JR. Comparative study of effects of selective inhibitors on esterase isoenzymes from mosquito *Anopheles punctipennis*. *Comp Biochem Physiol* 44:1185-1187, 1972.

Lee A, Metcalf RL, Booth GM. House cricket acetyl-cholinesterase: histochemical localization and in situ inhibition by O,O-dimethyl s-aryl phosphorothioates. *Ann Entomol Soc Amer* 66:333-343, 1973.

Booth GM, Chang KM, Ferrell D, Larsen JR. The fate and metabolism of BAS-290H in a model ecosystem. *Proc West Soc Weed Sci* 27:22-34, 1974.

Yu CC, Booth GM, Hansen DJ, Larsen JR. Fate of carbofuran in a model ecosystem. *J Agricult Food Chem* 22:431-434, 1974.

Yu CC, Booth GM, Hansen DJ, Larsen JR. Fate of Bux insecticide in a model ecosystem. *Environ Entomol* 3:975-977, 1974.

Stratton CJ, Booth GM. Ultrastructure of synaptic vesicles and neurosecretory droplets in insect ganglia after controlled aldehyde fixation. *J Insect Physiol* 21:71-80, 1975.

Booth GM. The usefulness of model ecosystems in insecticide development. *Environ Qual* 3:351-358, 1975.

Booth GM, Rhees RW. The fate of DEHP in mice and model ecosystems. *Proc Intern Cong Pharmacol* 6:360-369, 1975.

Booth GM, Stratton CJ, Larsen JR. Localization and substrate inhibitor specificity of insect esterase enzymes. *Proc Isozyme Conf III*:721-738, 1975.

Booth GM, Rhees RW, Peterson RV, Barney P, Larsen JR. Metabolism and autoradiographic localization of di-2-ethylhexyl phthalate (DEHP) in mice and a model ecosystem. In: Abstracts: Sixth International Congress of Pharmacology. Finland, 542, 1975.

Stratton CJ, Booth GM. Ultrastructure of synaptic vesicles and neurosecretory droplets in insect ganglia after controlled aldehyde fixation. *Insect Physiol* 21:71-80, 1975.

Yu CC, Booth GM, Larsen JR. Fate of triazine herbicide cyanazine in a model ecosystem. *J Agricult Food Chem* 23:1014-1015, 1975.

- Yu CC, Booth GM, Hansen DJ, Larsen JR. Fate of bux insecticide in a model ecosystem. *Environ Entomol* 3:975-977, 1975.
- Ys CC, Booth GM, Hansen DJ. Fate of dicamba in a model ecosystem. *Bull Environ Contam Toxicol* 13:280-283, 1975.
- Yu CC, Booth GM, Hansen DJ, Larsen Jr. Fate of alachlor and propachlor in a model ecosystem. *J Agricult Food Chem* 23:877-879, 1975.
- Yu CC, Booth GM, Hansen DJ, Larsen JR. Fate of pyrazon in a model ecosystem. *J Agricult Food Chem* 23:309-311, 1975.
- Rhees RW, Booth GM, Petersen RV. Localization of tritiated di-2-ethylhexyl phthalate in mouse - autoradiographic study. *Fed Proc* 34:227, 1975.
- Yu CC, Hansen DJ, Booth GM. Fate of dicamba in a model ecosystem. *Bull Environ Contam Toxicol* 13:280-283, 1975.
- Booth GM, Rhees RW, Ferrell D, Larsen JR. Determination of release of bound fluchloralin residues from soil into water. *ACS Sympos Ser* 29:364-365, 1976.
- Braithwaite J, Booth GM, Robison L. Field efficacy of two organophosphates and an insect growth regulator on the alfalfa weevil *Hypera postica* (Gyllenhal). *Sci Biol J* (Sept-Oct):170-179, 1976.
- Booth GM. Using model ecosystems to predict environmental behavior of pesticides. *Am Biol Teach* 39:275-278, 1977.
- Booth GM, Ferrell D. Environmental behavior of dimilin. *Abstr Papers Am Chem Soc* 173:51, 1977.
- Booth GM, Woodfield J. Relationship between ache inhibition and behavioral deficits in passerine birds, bobwhite quail and *Peromyscus* using orthene and monitor. *Abst Papers Am Chem Soc* 175:44, 1978.
- Bradshaw WS, Allen SD, Booth GM, Seegmiller RE. Biochemical indicators of developmental toxicity. *Toxicol Appl Pharmacol* 48:A118, 1979.
- Stewart D A, Booth GM, Petty JL. Emergence data and artificial rearing media for an aspen bark beetle, *Trypophloeus populi* (Coleoptera:Scolytidae). *Great Basin Nat* 39:129-132, 1979.
- Larsen JR, Booth GM. Optic neuropiles absent in cave beetle *Glacivavilola bathyscioides* (Coleoptera: Leiodidae). *Trans Amer Micros Soc* 98:461-464, 1979.
- Wright BW, Lee ML, Booth GM. Determination of triphenyltin hydroxide derivatives by capillary GC and in-selective FPD. *HRC and CC* 2:189-190, 1979.
- Wright BW, Peaden PA, Lee ML, Booth GM. Determination of surface hydroxyl concentration on glass and fused-silica capillary columns. *Chromatographia* 15:584-586, 1982.

Vassilaros DL, Stoker PW, Booth GM, Lee ML. Capillary gas-chromatographic determination of polycyclic aromatic-compounds in vertebrate fish tissue. *Anal Chem* 54:106-112, 1982.

Booth GM, Weber DJ, Ross LM, Burton SD, Bradshaw WS, Hess WM, Larsen JR. Mechanisms of pesticide resistance in non-target organisms. In: *Pest Resistance to Pesticides: Challenges and Prospects*. Georgiou GP, (ed), Plenum Press, New York, 1983.

Later D, Stoker P, Booth GM. Analytical and chromatographic methods for the determination of cyano polycyclic aromatic hydrocarbons in coal-derived materials. In: Eighth International Symposium on Polynuclear Aromatic Hydrocarbons, Columbus OH, 1983.

Later DW, McFall T, Booth GM, Lee ML. Microbial mutagenicity of isomeric two-, three-, and four-ring amino polycyclic aromatic hydrocarbons. *Environ Mut* 6:497, 1984.

McFall T, Booth GM, Lee ML, Tominaga Y, Pratap R, Tedjamulia M, Castle RN. Mutagenic activity of methyl-substituted tricyclic and tetracyclic aromatic sulfur heterocycles. *Mutation Res* 135:9p7-103, 1984.

Booth GM, Larsen JR, Lee ML. The environmental effects of fossil fuels: a global perspective. *Proc Intern Conf Environ Contam, London*, 606, 1984.

Later DW, Pelroy RA, Stewart DL, McFall T, Booth GM, Lee ML, Tedjamulia M, Castle RN. Microbial mutagenicity of isomeric 2-ring, 3-ring, and 4-ring amino polycyclic aromatic-hydrocarbons. *Environ Mutagenesis* 6:497-515, 1984.

McFall T, Booth GM, Lee ML. Mutagenic activity of methyl substituted tri- and tetracyclic aromatic sulfur heterocycles. *Mut Res* 135:97-103, 1984.

Schuler RL, Hardin BD, Niemeir RW, Booth GM, Hazelden K, Piccirillo V, and Smith K. Results of testing fifteen glycol ethers in a short-term in vivo reproductive toxicity bioassay. *Environ Hlth Perspect* 57:141-146, 1984.

Eastmond DA, Booth GM, Lee ML. Toxicity, accumulation, and elimination of polycyclic aromatic sulfur heterocycles in *Daphnia magna*. *Arch Environ Contam Toxicol* 13:105-111, 1984.

Ghaffar H, Larsen JR, Booth GM, Perkes R. General morphology of the brain of the blind cave beetle, *Neaphaenops tellkampfli* Erichson (Coleoptera: Carabidae). *Int J Insect Morphol Embryol* 13:357-371, 1984.

Plasterer MR, Bradshaw WS, Booth GM, Carter MW, Schuler RL, Hardin BD. Developmental toxicity of 9 selected compounds following prenatal exposure in the mouse - naphthalene, para-nitrophenol, sodium selenite, dimethyl phthalate, ethylenethiourea, and 4 glycol ether derivatives. *J Toxicol Environ Health* 15:25-31, 1985.

Stoker PW, Larsen JR, Booth GM, Lee ML. Pathology of gill and liver-tissues from 2 genera of fishes exposed to 2 coal-derived materials. *J Fish Biol* 27:31-46, 1985.

Roylance KJ, Jorgensen CD, Booth GM, Carter MW. Effects of dietary endrin on reproduction of mallard ducks (*Anas platyrhynchos*). *Arch Environ Contam Toxicol* 14:705-711, 1985.

Nishioka M, Campbaell RM, West WR, Smith PA, Booth GM, Lee ML, Kudo H, Castle RN. Determination of aminodibenzothiophenes in a coal liquid. *Anal Chem* 57:1868-1871, 1985.

West WR, Smith PA, Booth GM, Lee ML. Determination and genotoxicity of nitrogen-heterocycles in a sediment from the black river. *Environ Toxicol Chem* 5:511-519, 1986.

Booth GM, Alder D, Lee ML, Carter MW, Whitmore RC, Seegmiller RE. Environmental fate and properties of 1-(4-chlorophenyl)-3-(2,6-difluorobenzoyl) urea (Diflubenzuron, DIMILIN. In: *Benzoylphenylureas*, Wright JE (ed). Plenum Press, New York, 141, 1986.

West WR, Smith PA, Booth GM, Wise SA, Lee ML. Determination of genotoxic polycyclic aromatic-hydrocarbons in a sediment from the Black River (Ohio). *Arch Environ Contam Toxicol* 15:241-249, 1986.

Lee ML, Nishioka M, Booth GM, Castle RN. Identification and mutagenicity of amino-substituted and hydroxy-substituted nitrogen and sulfur heterocycles in a solvent-refined coal liquid. *Abst Papers Amer Chem Soc* 191:9, 1986.

Nishioka M, Smith PA, Booth GM, Lee ML, Kudo H, Muchiri DR, Castle RN, Klemm LH. Determination and mutagenic activity of nitrogen-containing thiophenic compounds in coal-derived products. *Fuel* 65:711-714, 1986.

Booth GM, Larsen JR. Histochemistry of acetylcholinesterase in the insect brain. In: *The Arthropod Brain*, Gupta GP (ed). John Wiley and Sons, New York, 439, 1987.

Martinat PJ, Christman V, Cooper RJ, Dodge KM, Whitmore RC, Booth GM, Scidel G. Environmental fate of dimilin 25-W in a central Appalachian forest. *Bull Environ Contam Toxicol* 39:142-149, 1987.

Plasterer MR, Booth GM, Lee ML, West WR, Smith PA, Tedjamulia ML, Tominaga Y, Castle RN. Comparative mutagenicity of analogous amino- and nitropolycyclic aromatic hydrocarbons. In: *Health and Environmental Research on Complex Organic Mixtures*, Gray RH, Chess EK, Mellinger PJ, Riley RG, Springer DL (eds), Pacific Northwest Laboratory, Richland WA, 251-258, 1987.

Warren SD, Booth GM. Scanning electron microscopy: A tool for community pollination ecologists. *The Biologist* 66:14-19, 1987.

West WR, Smith PA, Booth GM, Lee ML. Isolation and detection of genotoxic components in a Black River sediment. *Environ Sci Technol* 22:224-228, 1988.

Booth GM. Toxicological and chemical studies of Black River sediment. *Abst Papers Amer Chem Soc* 195:106, 1988.

Warren SD, Harper KT, Booth GM. Elevational Distribution of insect pollinators. *Am Midland Nat* 120:325-330, 1988.

West WR, Smith PA, Booth GM, Lee ML. Isolation and detection of genotoxic components in a Black River sediment. *Environ Sci Technol* 22:224, 1988.

Li YF, Booth GM, Seegmiller RE. Evidence for embryotoxicity of gossypol in mice and chicks with no evidence of mutagenic activity in the Ames test. *Reprod Toxicol* 3:59-62, 1989.

Best LB, Whitmore RC, Booth GM. Use of Cornfields by birds during the breeding season – The importance of edge habitat. *Am Midland Nat* 123:84-99, 1990.

Rasmussen K, Booth GM, Lee ML, Castle RN. Mutagenicities of hydroxy-substituted carbazoles and dibenzothiophenes using the CHO HGPRT assay. *Environ Toxicol and Chem* 10:1133-1137, 1991.

Vincent DR, Bradshaw WS, Booth GM, Seegmiller RE, Allen SD. Effect of PCB and DES on rat monoamine-oxidase, acetylcholinesterase, testosterone, and estradiol ontogeny. *Bull Environ Contam Toxicol* 48:884-893, 1992.

Parrish TD, Francis ES, Booth GM, Eatough DJ, Lee ML. Supercritical fluid chromatography coupled with the Salmonella microsuspension mutagenicity assay. *Fresenius J Anal Chem* 344:442-446, 1992.

Madrigal JL, Parrish JR, Carter MW, Booth GM, Fischer DL. An alternative avian population estimate for overdispersed populations for use in mark recapture studies of pesticide effects. *Environ Toxicol Chem* 12:1233-1241, 1993.

Madrigal JL, Pixton GC, Collings BJ, Booth GM, Smith HD. A comparison of two methods of estimating bird mortalities from field-applied pesticides. *Environ Toxicol Chem* 15:878-885, 1996.

Dutson SM, Booth GM, Schaalje B, Castle RN, Seegmiller RE. Comparative developmental dermal toxicity and mutagenicity of carbazole and benzo[a]carbazole. *Environ Toxicol Chem* 16:2113-2117, 1997.

Hamilton RM, Dogan EB, Schaalje GB, Booth GM. Olfactory response of the lady beetle *Hippodamia convergens* (Coleoptera: Coccinellidae) to prey related odors, including a scanning electron microscopy study of the antennal sensilla. *Environ Entomol* 28:812-822, 1999.

Ostraff M, Anitoni K, Nicholson A, Booth GM. Traditional Tongan cures for morning sickness and their mutagenic/toxicological evaluations. *J Ethnopharmacol* 71:201-209, 2000.

Hansen JM, Reynolds PR, Booth GM, Schaalje GB, Seegmiller RE. Developmental toxicity of carbon black oil in mice. *Teratol* 62:227-232, 2000.

Acar EB, Medina JC, Lee ML, Booth GM. Olfactory behavior of convergent lady beetles (Coleoptera : Coccinellidae) to alarm pheromone of green peach aphid (Hemiptera : Aphididae). *Can Entomologist* 133:389-397, 2001.

Acar EB, Smith BN, Hansen LD, Booth GM. Use of calorespirometry to determine effects of temperature on metabolic efficiency of an insect. *Environ Entomol* 30:811-816, 2001.

- Acar EB, Mill DD, Smith BN, Hansen LD, Booth GM. Calorespirometric determination of the effects of temperature on metabolism of *Harmonia axyridis* (Col: Coccinellidae) from second instars to adults. *Environ Entomol* 33:832-838, 2004.
- Booth GM, Mortensen SR, Carter MW, Schaalje BJ. Hazard evaluation for northern bobwhite quail (*Colinus virginianus*) exposed to chlorpyrifos-treated turf and seed. *Ecotoxicol Environ Safety* 60:176-187, 2005.
- Acar EB, Mill DD, Smith BN, Hansen LD, Booth GM. Comparison of respiration in adult *Harmonia axyridis* Pallas and *Hippodamia convergens* Guerrin-Manaville (Coleoptera: Coccinellidae). *Environ Entomol* 34:241-245, 2005.
- Joyal JJ, Hansen LD, Coons DR, Booth GM, Smith BN, Mill DD. Calorespirometric determination of the effects of temperature, humidity, low O₂ and high CO₂ on the development of *Musca domestica* pupae. *J Therm Analysis Calorimetry* 82:703-709, 2005.
- Cook DM, Swanson RC, Eggett DL, Booth GM. A Retrospective Analysis of Prevalence of Gastrointestinal Parasites among School Children in the Palajunoj Valley of Guatemala. *J Health Popul Nutrit* 27:31-40, 2009.
- Roney HC, Booth GM, Cox PA. Competitive exclusion of Cyanobacterial species in the Great Salt Lake. *Extremophiles* 13:355-361, 2009.

CURRICULUM VITAE

William S. Bradshaw

Sources:

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<http://ismagazine.byu.edu/Issues/Spring2008/profilesretireesnewfaculty.aspx>

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

UA 1195, Box 3, Folder 4, Department of Zoology Records, L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University.

Education:

BA, Harvard University, 1961

PhD, University of Illinois, 1968

Employment:

Research and Teaching Assistant, University of Illinois, 1963-1965

Research Assistant, University of Washington, 1965-1968

Post-doctoral fellow, United States AEC, Oak Ridge National Laboratory, Oak Ridge, Tennessee, 1968-70

Assistant Professor of Zoology, Brigham Young University, 1970-1971

President, Hong Kong Mission, The Church of Jesus Christ of Latter-day Saints, 1971-1974

Assistant Professor of Zoology, Brigham Young University, 1974-1977

Associate Professor of Zoology, Brigham Young University, 1978-1985

Professor of Zoology, Brigham Young University, 1985-2008

Teaching:

Developmental Genetics

Embryology

Experimental Embryology

Advanced Topics in Embryology

Cellular and Developmental Biology

Developmental Biology

Cell Biology

Molecular Biology

Administration and Service:

College Premedical Committee, 1970-1971;1974-1975;1976-1978 (Chair); 1978-1979
University Faculty Advisory Committee, 1975-1977
University Student Code of Honor Committee, 1975-1977
University Distinguished Faculty Lecture Committee, 1982-1986
Faculty Advisor, Blue Key Honor Club, 1982-1983
Associate Dean, Honors Program, Brigham Young University, 1983-1986
Associate Dean, Honors and General Education, 1986-1988
Associate Editor, Encyclopaedia, Utah Academy of Arts and Sciences, 1991
University Library Committee, 1991-1993

Honors:

Professor of the Month, ASBYU, Blue Key, December 1980
Professor of the Year, ASBYU, Blue Key, 1980-1981
Forum Speaker, Brigham Young University, August 1982
Sigma Xi Lecture, Brigham Young University, 1982
Karl G. Maeser Distinguished Teaching Award, Brigham Young University, 1985.
Karl G. Maeser Professor of Education, 1987
College of Life Sciences Outstanding Teaching Award, 2007

Professional Societies:

Society for Developmental Biology

Research Funding:

Research Division at BYU:

Nucleic acid and protein synthesis during development of *Rhynchosciara*, 1970-1976, \$4,832
Electron microscope study of polytene chromosomes, 1977-1978, \$1,150
Computer analysis of enzyme ontogeny, 1982-1983, \$1,150
Effects of DES on parturition in the rat, 1983-1984, \$1,432
Fetotoxic effects of DES, 1984-1985, \$2,100
Histology of fetal lung in caesarean-delivered rat pups, 1985-1986, \$1,900
Reproductive performance in male and female rats prenatally exposed to DES, 1986-1987, \$2,039
Transformation function of the CEF-5 gene, 1990-1991, \$2,600
Function of CEF-5 gene in bone cell differentiation, 1990-1991, \$2,600

Thompson-Hayward Chemical Company for studies on biochemical binding of TPTH in animal tissues, 1976, \$2,000 (with Booth GM)

Principal investigator, NIEHS Grant on Identification of Biochemical Indicators of Developmental Toxicity, 1977-1980, \$327,739 (with Booth GM, Seegmiller RE, Allen S)

Co-Investigator, National Institute for Occupational Safety and Health Grant on Screening of priority chemicals for potential reproductive hazard, 1981-1982, \$69,313 (with Booth GM, Carter MW)

Principal Investigator, Chantal Pharmaceutical Corp, Los Angeles CA. Contract to study Toxicity of X-Andron in the Rat, 1983-1984, \$17,482

Research Award, Karl G. Maeser Professorship, BYU, 1987-1989, \$30,000

Co-Principal Investigator, The Comprehensive Program Fund for the Improvement of Post-Secondary Education, US Department of Education. Development of Computer Simulations of Biological Research for use in Life Science Courses. 1999-2001, Total Costs: \$181,915 (with Bell JD).

Co-Principal Investigator, P116B041238; U.S. Dept. of Education; Disseminating a Package of Best Practices for Teaching and Assessing Analytical Reasoning in Biology. 2004-2008, Total Costs: \$526,695 (with Bell JD).

Publications:

Rutter WJ, Ball W, Bradshaw W, Clark WR, Sanders TG. Morphological and molecular analogy in cytodifferentiation. In: Schneyer LH, Schneyer CA (eds). *Secretory Mechanisms of Salivary Glands*. Academic Press, New York, 238-253, 1967.

Rutter WJ, Bell WD, Bradshaw WS, Clark WR, Sanders TG, Ball WD. Multiphasic regulation in cytodifferentiation. In: Fleishchmajer R, Billingham RE (eds). *Williams and Wilkins*, Baltimore, 114-131, 1968.

Bradshaw WS. Studies on pancreatic lipase: multiplicity, distribution, and developmental regulation. PhD Thesis, University of Illinois, 1968.

Rutter WJ, Kemp JD, Bradshaw WS, Clark WR, Ronzio RA, Sanders TG. Regulation of specific protein synthesis in cytodifferentiation. *J Cell Physiol* 72 (Suppl 1):1-18, 1968.

Bradshaw WS, Papaconstantinou J. Differential incorporation of 5-bromodeoxyuridine into DNA puffs of larval salivary gland chromosomes in *Rhynchosciara*. *Biochem Biophys Res Commun* 41:306-312, 1970.

Bradshaw WS, Rutter WJ. Multiple pancreatic lipases. Tissue distribution and pattern of accumulation during embryological development. *Biochemistry* 11:1517-1528, 1972.

Papaconstantinou J, Bradshaw WS, Chin ET, Julku EM. Synthesis of satellite DNA in *Rhynchosciara hollaenderi*. *Dev Biol* 28:649-661, 1972.

Farmer JL, Bradshaw WS, Smith CS 3rd. Characteristics of delta 1-pyrroline-5-carboxylate reductase from *Drosophila melanogaster*. *Comp Biochem Physiol B* 62:143-146, 1979.

Farmer JL, Bradshaw WS, Johnson FB. The new biology and Mormon theology. *Dialogue* 12:71, 1980.

Bradshaw WS, Bradshaw MG. Escape from Vietnam: An interview with Nguyen Van The. *Dialogue* 13:23-29, 1980.

Rands PL, White RD, Carter MW, Allen SD, Bradshaw WS. Indicators of developmental toxicity following prenatal administration of hormonally active compounds in the rat. I. Gestational length. *Teratology* 25:37-43, 1982.

Rands PL, Newhouse CL, Stewart JL, Bradshaw WS. Indicators of developmental toxicity following prenatal administration of hormonally active compounds in the rat. II. Pattern of maternal weight gain. *Teratology* 25:45-51, 1982.

Wardell RE, Seegmiller RE, Bradshaw WS. Induction of prenatal toxicity in the rat by diethylstilbestrol, zeranol, 3,4,3',4',-tetrachlorobiphenyl, cadmium, and lead. *Teratology* 26:229-237, 1982.

Gates RL, Farmer JL, Carter MW, Bradshaw WS. Purification and kinetics of delta¹-pyrroline-5-carboxylate reductase from *Drosophila melanogaster*. *Insect Biochem* 13:19-43, 1983.

Booth GM, Weber DJ, Ross LM, Burton SD, Bradshaw WS, Hess WM, Larson JP. Mechanisms of pesticide resistance in non-target organisms. In: Georgio GP, Saito T (eds). In: *Pesticide Resistance*. Plenum Press, New York, 387-409, 1983.

White RD, Allen SD, Bradshaw WS. Delay in the onset of parturition in the rat following prenatal administration of developmental toxicants. *Toxicol Lett* 18:185-192, 1983.

Bradshaw WS. Genetic Engineering. *The Leading Edge* 5:23-36, 1983.

Stewart JL, Newhouse CL, Wagner MV, Bradshaw WS. The effects of prenatal exposure to structurally diverse chemicals on the ontogeny of rat dehydrogenases. *Biol Neonate* 46:69-79, 1984.

Simmons DL, Valentine DM, Bradshaw WS. Different patterns of developmental toxicity in the rat following prenatal administration of structurally diverse chemicals. *J Toxicol Environ Health* 14:121-136, 1984.

Harris C, Bradshaw WS. Alterations in liver ultrastructure and induction of UDP-glucuronyltransferase in the rat following prenatal exposure to 3,4,3',4'-tetrachlorobiphenyl. *Arch Environ Contam Toxicol* 13:715-721, 1984.

Cornwall GA, Carter MW, Bradshaw WS. The relationship between prenatal lethality or fetal weight and intrauterine position in rats exposed to diethylstilbestrol, zeranol, 3,4,3',4'-tetrachlorobiphenyl, or cadmium. *Teratology* 30:341-349, 1984.

Plasterer MR, Bradshaw WS, Booth GM, Carter MW, Schuler RL, Hardin BD. Developmental toxicity of nine selected compounds following prenatal exposure in the mouse: naphthalene, p-nitrophenol, sodium selenite, dimethyl phthalate, ethylenethiourea, and four glycol ether derivatives. *J Toxicol Environ Health* 15:25-38, 1985.

Carlson KI, Yang HT, Bradshaw WS, Conlee RK, Winder WW. Effect of maternal exercise on fetal liver glycogen late in gestation in the rat. *J Appl Physiol* 60:1254-1258, 1986.

Bradshaw WS. I would be a purveyor of mysteries. Fellowship. Brigham Young University: BYU Press, 9-16, 1986.

Barnes JR, Bradshaw WS. Biology 100 Syllabus, Burgess Publishing Company, 1987.

Bradshaw WS. Development in Animals. In Storey RD, Bradshaw WS. *Biological Science, A Molecular Approach*, BSCS Blue Version 6th Edition, D. C. Heath and Co, 315-335, 1990.

Harris C, Thomas DE, Carter MW, Bradshaw WS. Fetotoxic alterations in the normal ontogenies of rat microsomal and lysosomal enzymes. *J Biochem Toxicol* 6:181-194, 1991.

Leonhardt DE, Coleman LW, Bradshaw WS. Perinatal toxicity of ethylene glycol dimethyl ether in the rat. *Reprod Toxicol* 5:157-162, 1991.

Clevenger WR, Cornwall GA, Carter MW, Bradshaw WS. Diethylstilbestrol-induced perinatal lethality in the rat. I. Relationship to reduced maternal weight gain. *Biol Reprod* 44:575-582, 1991.

Zimmerman SA, Clevenger WR, Brimhall BB, Bradshaw WS. Diethylstilbestrol-induced perinatal lethality in the rat. II. Perturbation of parturition. *Biol Reprod* 44:583-589, 1991.

Carrell DT, Bradshaw WS, Jones KP, Middleton RG, Peterson CM, Urry RL. An evaluation of various treatments to increase sperm penetration capacity for potential use in an in vitro fertilization program. *Fertil Steril* 57:134-138, 1992.

Vincent DR, Bradshaw WS, Booth GM, Seegmiller RE, Allen SD. Effect of PCB and DES on rat monoamine oxidase, acetylcholinesterase, testosterone, and estradiol ontogeny. *Bull Environ Contam Toxicol* 48:884-893, 1992.

Bradshaw WS. Baptism of Fire and the Holy Ghost. *Encyclopedia of Mormonism*, Ludlow DH (ed in chief) 1992.

Xie W, Merrill JR, Bradshaw WS, Simmons DL. Structural determination and promoter analysis of the chicken mitogen-inducible prostaglandin G/H synthase gene and genetic mapping of the murine homolog. *Arch Biochem Biophys* 300:247-252, 1993.

Simmons DL, Xie W, Evett G, Merrill J, Robertson DL, Bradshaw WS. Drug inhibition and cellular regulation of prostaglandin G/H synthase isoenzyme 2. *J Lipid Mediat* 6:113-117, 1993.

Lu X, Xie W, Reed D, Bradshaw WS, Simmons DL. Nonsteroidal antiinflammatory drugs cause apoptosis and induce cyclooxygenases in chicken embryo fibroblasts. *Proc Natl Acad Sci U S A* 92:7961-7965, 1995.

Reed DW, Bradshaw WS, Xie W, Simmons DL. In vivo and in vitro expression of a non-mammalian cyclooxygenase-1. *Prostaglandins* 52:269-284, 1996.

Simmons DL, Lu X, Bradshaw WS, Xie W. The dilemma of two cyclooxygenases: Identifying the roles of COX-1 and COX-2 in inflammation and apoptosis. In: *Improved Non-Steroid Anti-inflammatory Drugs, COX-2 Enzyme Inhibition*. (Vance JR, Botting J, Botting R, eds), Kluwer Academic Publishers and William Harvey Press, London, 24-65, 1996.

Lu X, Fairbairn DW, Bradshaw WS, O'Neill KL, Ewert DL, Simmons DL. NSAID-induced apoptosis in Rous sarcoma virus-transformed chicken embryo fibroblasts is dependent on v-src and c-myc and is inhibited by bcl-2. *Prostaglandins* 54:549-568, 1997.

Bradshaw WS. Remission of Sins. In: *To All the World: The Book of Mormon Articles from the Encyclopedia of Mormonism* by Ludlow DH(Author, Editor), Brown SK (Editor), Welch JW (Editor), Neal A. Maxwell Institute for Religious Scholarship, Provo, Utah, 2000.

Kitchen E, Bell JD, Reeve S, Sudweeks RR, Bradshaw WS. Teaching cell biology in the large-enrollment classroom: methods to promote analytical thinking and assessment of their effectiveness. *Cell Biol Educ* 2:180-194, 2003.

Kitchen E, King SH, Robison DF, Sudweeks RR, Bradshaw WS, Bell JD. Rethinking exams and letter grades: how much can teachers delegate to students? *CBE Life Sci Educ* 5:270-280, 2006.

Nelson J, Robison DF, Bell JD, Bradshaw WS. Cloning the professor, an alternative to ineffective teaching in a large course. *CBE Life Sci Educ* 8:252-263, 2009.

Bradshaw WS. Biological Evolution: Toward a Reconciliation of the Science and Our Faith. *Sunstone* 158:25-37, 2010.

Reeve S, Kitchen E, Sudweeks RR, Bell JD, Bradshaw WS. Development of an instrument for measuring self-efficacy in cell biology. *J Appl Meas* 12:242-260, 2011.

Dehlin JP, Galliher RV, Bradshaw WS, Hyde DC, Crowell KA. Sexual orientation change efforts among current or former LDS church members. *J Couns Psychol* 62:95-105, 2015.

Bradshaw K, Dehlin JP, Crowell KA, Galliher RV, Bradshaw WS. Sexual orientation change efforts through psychotherapy for LGBQ individuals affiliated with the Church of Jesus Christ of Latter-day Saints. *J Sex Marital Ther* 41:391-412, 2015.

Crowell KA, Galliher RV, Dehlin J, Bradshaw WS. Specific aspects of minority stress associated with depression among LDS affiliated non-heterosexual adults. *J Homosex* 62:242-267, 2015.

CURRICULUM VITAE

Lee F. Braithwaite

Sources:

<https://www.facebook.com/drb.byu/home>

Web of Science Biosis Data Base

http://lsmagazine.byu.edu/Portals/49/docs/2012_Spring.pdf

UA 1195, Department of Zoology Records, L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Education:

BS, Brigham Young University, 1959

MS, Brigham Young University, 1962

PhD, Brigham Young University, 1970

Employment:

Faculty Member, Brigham Young University Department of Zoology, 1962-2011

Teaching:

Invertebrate Zoology

Advanced Invertebrate Zoology I, II

Introduction to Marine Biology

Animal Biology

Research in Marine Ecology

Development of Marine Animals

Aquaculture

Adaptive Strategies of Animals

Evolutionary Science

Vertebrate and Invertebrate Strategies (Animal Diversity)

Marine Biology Courses were field courses taught at Baja, Mexico, the Friday Harbor Laboratories of the University of Washington, the Hopkins Marine Station of Stanford University, in Pacific Grove, CA, and, most recently the Oregon Institutes of Marine Biology, Charleston OR.

Presentations:

Devotional Talk, *From I will try to I will do*. Brigham Young University, September 2005.

Awards:

College of Biology and Agriculture Mentoring Award, Brigham Young University,
College of Biology and Agriculture Teaching Excellence Award, Brigham Young University
Karl G. Maeser Teaching Excellence Award, Brigham Young University (2 times)

Publications:

Beck DE, Braithwaite LF. *Invertebrate Zoology, Laboratory Workbook, Third Edition*, Burgess, Minneapolis Mn, 1968.

Hentze LF, Braithwaite LF, Clark DL, Ethington RL, Flower RH. A fossiliferous lower Ordovician reference section from western United States. *International Paleontological Proceedings of the XXIII International Geological Congress*. Warsaw, Poland, 1973.

Braithwaite LF. Graptolites from the Lower Ordovician Pogonip Group of western Utah (*Special paper - The Geological Society of America*; 166), 1976.

Nance JM, Braithwaite LF. The function of mucous secretions of the cushion star *Pteraster tessellatus*. *J Exp Marine Biol Ecol* 40:259-266, 1979.

Young CM, Braithwaite LF. Larval behavior and post settling morphology in the ascidian *Chelyosoma productum*. *J Exp Marine Biol Ecol* 42:157-170, 1980.

Young CM, Braithwaite LF. Orientation and current induced flow in the stalked ascidian *Styela montereyensis*. *Biol Bull (Woods Hole)* 159:428-440, 1980.

Nance JM, Braithwaite LF. Respiratory water flow and production of mucus in the cushion star *Pteraster tessellatus* (Echinodermata, Asteroidea). *J Exp Marine Biol Ecol* 50:21-32, 1981.

Bingham BL, Braithwaite LF. Defense adaptations of the dendrochirote holothurian *Psolus chitonoides*. *J Exp Marine Biol Ecol* 98:311-322, 1986.

Demetropoulos CL, Braithwaite LF, Maurer BA, Whiting D. Foraging and dietary strategies of two sublittoral cottids *Jordania zonope* and *Artedius harringtoni*. *J Fish Biol* 37:19-32, 1990.

Zardus JD, Braithwaite LF, Maurer BA. Diet of the barnacle *Balanus nubilus* in the presence and absence of *Metridium selile*. *Am Zool* 31:103A, 1991.

Harris DJ, Maxson LS, Braithwaite LF, Crandall KA. Phylogeny of the Thoracican Barnacles Based on 18S rDNA Sequences. *J Crust Biol* 20:393-398, 2000.

Tillack MA, Briathwaite LF. Feeding methods of *Balanus eburneus* and *Balanus Amphitrite* in the Indian River Lagoon, Florida. *Am Zool* 41:1607, 2001.

Wallace RL, Taylor WK, Beck DE, Braithwaite LF, Wallace RL. Invertebrate zoology: A laboratory manual. Upper Saddle River, NJ: Prentice Hall, 2002.

Braithwaite LF, Stone B and Bingham BL. Defensive behaviors of the gastropod *Amphissa columbiana*. *J. Shellfish Biol.* 29: 217-222, 2010.

CURRICULUM VITAE

Laura Clarke Bridgewater, Ph.D.

Associate Professor, Brigham Young University Department of Microbiology and Molecular Biology
3141 LSB, Provo, Utah 84602
phone: (801) 422-2434 fax: (801) 422-0519
e-mail: laura_bridgewater@byu.edu

EDUCATION

The George Washington University, Washington, D.C., 1989-1995
Ph.D. in Genetics, 1995
Academic Emphases: Molecular Biology, Gene Regulation, Development
Brigham Young University, Provo, Utah, 1985-1989
B.S. in Microbiology, 1989

EMPLOYMENT HISTORY

2014-2015: Visiting Researcher in the laboratory of Dr. Liping Zhao, School of Life Science and Biotechnology, Shanghai Jiao Tong University, Shanghai, China
2005-present: Associate Professor, Dept. of Microbiology and Molecular Biology, BYU
2001-2005: Assistant Professor, Dept. of Microbiology & Molecular Biology, BYU
1999-2001: Assistant Professor, Dept. of Zoology, BYU
1996-1999: Postdoctoral Fellow Dept. of Molecular Genetics, M.D. Anderson Cancer Center, Houston, Texas, P.I.: Benoit de Crombrughe
1995-1996: Postdoctoral Fellow, Human Genetics Center, University of Texas Health Science Center at Houston, P.I.: Craig L. Hanis
1990-1995: Graduate Research Assistant, Dept. of Pharmacology, The George Washington University Medical Center, Advisor: Steven R. Patierno
1988, January-March: Intern, NICHD, National Institutes of Health, Advisor: Bill A. Gahl
1987-1989: Research Assistant, Department of Zoology, Brigham Young University, Advisor: Robert E. Seegmiller

UNIVERSITY CITIZENSHIP AND SERVICE

2011-2014: Chair, Dept. of Microbiology and Molecular Biology, BYU
2010-2015: Faculty Advisor, BYU Women in Science Club
2009-2011: Member, BYU Honors Program Faculty Council
2008-2011: Member, Department Faculty Development Committee
2008-2011: Chair, Orientation Sub-Committee, BYU Employee Giving Committee
2008-2009: Member, University Athletic Advisory Council
2009-2010: Academic Sub-Committee Chair, University Athletic Advisory Council
2010-2011: Vice-Chair, University Athletic Advisory Council
2008-2009: Member, BYU Women's Research Institute Grant Review Committee
2007-2008: Member, College of Life Sciences Graduate Committee
2005-2006: Organizer, Seminar for Undergraduate Women in Math, Science, and Engineering
2002-2006: Chair, Department of Microbiology and Molecular Biology Graduate Committee
2005: Member, College of Life Sciences ORCA Scholarship Review Committee
2004-2005: Member, College of Biology and Agriculture Dean Search Committee

2004-2005: Member, BYU Pre-Medical Committee
 2004: Member, BYU DNA Sequencing Center Director Search Committee
 2003-2004: Chair, Department Curriculum Committee for Biology Core Courses
 2003: Member, Design Committee for SPF Rodent Facility Renovation
 2000-2001: Member, Physiology Faculty Position Search Committee
 1999: Member, Molecular Biology Committee

EXTERNAL CITIZENSHIP AND SERVICE

SCIENTIFIC COMMITTEES

Oct 2011 Ad hoc member, NIH Skeletal Biology Structure & Regeneration Study Section, Musculoskeletal, Oral, and Skin Sciences Integrated Review Group
 Aug 2011 Ad hoc member, NSF Physiological & Structural Systems Cluster Proposal Review Panel of Symbiosis Defense and Self-Recognition
 Sept 2010 Ad hoc member, NIH Skeletal Biology Structure and Regeneration Study Section, Musculoskeletal, Oral, and Skin Sciences Integrated Review Group
 Jan 2010 Ad hoc member, NIH Skeletal Biology Structure and Regeneration Study Section, Musculoskeletal, Oral, & Skin Sciences Integrated Review Group Special Emphasis Panel
 May 2009 Ad hoc member, NIH Musculoskeletal, Oral, & Skin Sciences, Challenge Grants in Health and Science Research Review Group
 Feb 2007 Ad hoc member, NIH Skeletal Biology Structure & Regeneration Study Section, Musculoskeletal, Oral, and Skin Sciences Integrated Review Group
 Jun 2006 Ad hoc member, NIH Skeletal Biology Structure & Regeneration Scientific Review Group
 Apr 2006 External reviewer, NSF single grant
 Mar 2006 Ad hoc member, National Institute for Arthritis and Musculoskeletal and Skin Diseases, Centers of Research Translation Special Review Group
 May 2005 External reviewer, NSF single grant
 1998-1999 Board of Directors, Texas Society for Biomedical Research

REVIEWER FOR THE FOLLOWING JOURNALS

Journal of Biological Chemistry	Molecular and Cellular Biology
PLoS ONE	Molecular and Cellular Biochemistry
Experimental Cell Research	Osteoarthritis and Cartilage
Biochimica et Biophysica Acta	International Journal of Cancer
Nucleic Acids Research	Journal of Orthopaedic Research
Molecular Biology of the Cell	Genomics
Int'l Journal of Biochemistry and Cell Biology	Matrix Biology
Journal of Bone and Mineral Research	Journal of Cancer
Arthritis and Rheumatism	

PROFESSIONAL SOCIETIES

International Society for Microbial Ecology
 Society for Developmental Biology
 American Society for Matrix Biology, Charter Member

American Association for Cancer Research
American Association for the Advancement of Science
American Society for Biochemistry and Molecular Biology
Osteoarthritis Research Society International

TEACHING ASSIGNMENTS (since 2005)

MMBIO 240 (Molecular Biology)

Summer 2014, 7 students (offered in Shanghai with Study Abroad program)

Fall 2013, 216 students

Fall 2012, 194 students

Fall 2011, 94 students

Winter 2011, 252 students

Winter 2010, 178 students

Winter 2009, 247 students

Winter 2008, 252 students

Fall 2007, 115 students

Winter 2007, 196 students

Fall 2006, 140 students

Winter 2006, 261 students

Fall 2005, 205 students

Winter 2005, 91 students

IAS 201R (China Study Abroad Preparatory course)

Winter 2014, 13 students

MMBIO 390R (Readings in Molecular Biology)

Winter 2014, 18 students

Fall 2009, 13 students

Fall 2008, 15 students

LFSCI 399R (Academic Internship, with China Study Abroad program)

Summer 2014, 13 students

MMBIO 557 (Genes and Cancer)

Winter 2011, 13 students

Winter 2009, 15 students

Winter 2007, 16 students

Winter 2005, 5 students

MMBIO 551R (Microbial Ecology, with China Study Abroad program)

Summer 2014, 5 students

MMBIO 551R (Current Topics in Molecular Biology)

Summer 2012, 6 students

MMBIO 551R (Gene Expression)
Winter 2006, 5 students

MMBIO 490R/691R (Molecular Biology Seminar)
Fall 2008, 14 students
Winter 2008, 13 students

MMBIO 661 (Molecular Biology of the Cell--graduate level)
Fall 2013, 24 students
Fall 2012, 14 students
Fall 2011, 21 students
Fall 2010, 17 students
Fall 2009, 14 students

MMBIO 662 (Genomics, Molecular Evolution, and Developmental Biology—grad level)
Winter 2014, 26 students
Winter 2013, 14 students
Winter 2012, 20 students
Winter 2011, 15 students
Winter 2010, 17 students

STUDENT TRAINEES (TOTAL NUMBERS)

3 Ph.D. students
12 M.S. students
12 Honors students
132 Undergraduate students
4 High school students

GRADUATE STUDENT TRAINEES

Claudia Tellez Freitas	Ph.D. Student	2015-present
Trina Loos	Ph.D. Student	2006-2010
Jaime Mayo	Ph.D. Student	2004-2007
Jeralyn Franson	M.S. Student	2015-present
Brandt Nichols	M.S. Student	2011-2013
Daniel Olsen	M.S. Student	2011-2013
Fialka Grigorova	M.S. Student	2009-2011
Mary Ann Genzer	M.S. Student	2004-2006
Laura Harris	M.S. Student	2002-2003
Elizabeth Jenkins	M.S. Student	2001-2004
Jenny Moss	M.S. Student	2001-2003
Dana Murphy	M.S. Student	2000-2002
Gwen Miller	M.S. Student	2000-2001
Marlan Walker	M.S. Student	2000-2001
James Ricks	M.S. Student	1999-2000

HONORS STUDENT TRAINEES

Caitlin Nichols	Honors Student	2008-2013
Michael Baldwin	Honors Student	2007-2011
Evan Davis	Honors Student	2007-2009
Daniel Jensen	Honors Student	2005-2007
Mark Tait	Honors Student	2004-2006
David Timme	Honors Student	2004-2006
Rudy Rodriguez	Honors Student	2000-2003
Todd Jackson	Honors Student	2000-2002
K. Nicole DeWitt	Honors Student	2000-2001
Vicki Winkel	Honors Student	2000
Reuben Chen	Honors Student	1999-2002
Trevor Ellison	Honors Student	1999-2001

UNDERGRADUATE STUDENT TRAINEES

Alexis Conley (2016-present)	Kevin Steed (2011-2012)*	Daniel Jensen (2005-2007) ††*
Mark Peterson (2016-present)	Matt Rees (2010-2012) †*	Brian Ellertson (2005-2007) †
Jeffery Zhao (2015-present)	Aubrey Rogers (2010-2012) ††*	Tassanee Soward (2005-2006)
Kaitlyn Williams (2015-present)	Ben Fisher (2010-2011)	Will Witwer (2005-2006)
Rachel Sevey (2015-present)	Lindsie Martin (2010-2011)	David Timme (2004-2006) †
Austin Brockbank (2015-present)	Jason Cooper (2010-2011)	Jordan Olsen (2004-2006) †
Jared Resolme (2015-present)	Brandalyn Chidsey (2009-2011) †*	Cindy Niederhauser (2004-2006) ††*
Conrad Stallings (2015-present)	Jacob Barney (2009-2011)	Mark Tait (2004-2006) †
Darla Miles (2015-present)	Jordan Richardson (2009-2010)	Clark Rogers (2004-2005) †
Peter Young ((2015)	Jayson Wutzbach (2009-2010)	Ben Kuntz (2004-2005) †
Andrew Rees (2013-present)	Nick Wallace (2009-2010) †	Chikage Kubo (2004-2005) †
Josh Yates (2012-2015)*	Julia Ventura (2009-2010) †*	Shaunae Martin (2004-2005)
Steven Pruitt (2013-2014)	Wayna Chow (2009-2010)	Amanda Troxel (2004-2005)
Chris Guynn (2013-2014)	Christopher Fox (2009) †*	Tyler Haberle (2004-2005) †
Nicole Barney (2013-2014)	Natalie Manwaring (2009)	Steve DeWidt (2004-2005) †
Rob Driggs (2013-2014)	Suzanna Logan (2009)	Bobby Palmer (2004-2005)
Spencer Dean (2013-2014)*	Derek Hill (2008-2010)	Dave Rowley (2004-2005)
Logan Harmon (2013-2014)	Caitlyn Nichols (2008-2010) †*	Carolina Montano (2003-2005) †*
Zach Pinter (2013-2014)	Michael Adam (2008-2010) †*	Chuck Meeker (2003-2004)
Jake Holland (2013-2014) †	Ryan Cordner (2008-2010) ††*	Jennifer Chiniquy (2003-2004)
Julianna Thong (2013)	Sampath Loganathan (2008-2009) †*	Mary Ann Genzer (2003-2004)
Megan Whitt (2012-2014)*	Kriti Shrestha (2008-2009)	Scott Richins (2003-2004) †
Wes Goar (2012-2014) †*	Alina Schmidt (2007-2009) ††*	Kyle Bullock (2003-2004)
Loyd Christensen (2012-2014)* ††	Evan Davis (2007-2009) †	Chad Christensen (2003-2004)
Tyson Bailey, (2012-2013) †*	Broc McCune (2007-2010) ††	Bryan Mason (2003-2004) †
Wayne Simmons (2012-2013)	Borel Fonhoue (2007-2009) †	Nick Orme (2002-2004) ††
Brianna Conley (2012-2013)	Devin Holden (2007-2009) †*	Chris Meinhart (2001-2004) †*
Alecia Brighton (2012)	Michael Baldwin (2007-2011) †	Jaron Coombs (2002-2003)
Ryan Mann (2011-2013)	Stephanie Gauvin (2007-2009) *	Justin Hunt (2002-2003)
Brian Earley (2011-2013)	Sam Wilkinson (2007-2008) †	Marianne Morris (2002-2003)
Dylan Randall (2011-2013)	Jonathan Hansen (2006-2008) ††	Daniel Watson (2002-2003)
Taylor Williams (2011-2012) †*	Daniel Sperry (2006-2007) †*	Kimberly Wilbur (2002-2003)
Tyson Skeen (2011-2012)	Rich Davis (2006-2007) †	Eric Freeman (2001-2003) †
Jillian Carr (2011-2012) †*	Alicia Yost (2006)	David Sontag (2001-2003)
Saroj Dhungel (2011-2012)*	Nathan Hicks (2005-2007)	Brandon Bomsta (2001-2003)*

Mike Layton (2001-2003)	Jason Dalling (2001-2002)	Hao Vu (1999-2001)‡
Rudy Rodriguez (2000-2003)†‡*	Jared Armstrong (2001-2002)	Nicole Dewitt (2001)
Daniel Holsinger (1999-2003)*	Steve Smith (2000-2002)†‡	Heather Taylor (2000-2001)‡
Whitni Babcock (2001-2002)†‡	Todd Jackson (2000-2002)†‡*	Jennifer Sampson (2000)‡
Brad Crosby (2001-2002)†‡	Laura D. Harris (2000-2002)†‡*	Vicki Winkel (2000)‡*
Sam Vaughn (2001-2002)†‡	Kit Bennion (1999-2002)†‡	Dana Murphy (1999-2000)†
Steve Crump (2001-2002)	Victoria Ryder (1999-2002)‡	James Clarke (1999-2000)*
Mark Rogers (2001-2002)	Reuben Chen (1999-2001)‡*	Jenny Potter (1999-2000)†‡**
Brian Miller (2001-2002)	Trevor Ellison (1999-2001)‡*	Ann Hillam (1999-2000)‡
Alisha Facer (2001-2002)	Eric Jenkins (2000-2001)	Thomas Carmack (1999-2000)‡

* Students who have authored a peer-reviewed research publication

† Students who have been first author on a poster and have presented that poster at a scientific meeting

‡ Students who have been a non-presenting author on a poster

HIGH SCHOOL STUDENT TRAINEES

Sia Im, Timpview High School (fall 2012)

Michael Perry, Timpview High School (summer 2012)

Andrew Brewer, Karl G. Maeser Preparatory Academy (summer 2011)

Hannah Leavitt, Karl G. Maeser Preparatory Academy (summer 2011)

HONORS AND AWARDS

Utah Valley University College of Science and Health Symposium Series speaker, 2012

Brigham Young University Forum Speaker, 2010

Scholarship Award, BYU Faculty Women's Association, 2009

College Outstanding Mentor Award, BYU College of Life Sciences, 2008

College Creative Achievement Award, BYU College of Biology and Agriculture, 2006

Alice Louise Reynolds Lecturer, BYU, 2006

BYU Young Scholar Award, for outstanding promise and contributions by faculty in the early stages of their academic careers, 2004

Damon Runyon-Walter Winchell Foundation, Postdoctoral Fellowship Award, 1997-1999

Cum Laude graduation from the George Washington University doctoral program, 1995

Phi Delta Gamma Scholarship for graduate study, George Washington University Chapter, 1993-1994

The George Washington University Presidential Merit Fellowship for Graduate Study, 1989-1992

Magna Cum Laude Graduation from BYU, 1989

BYU Trustees Scholarship, full tuition, 1985-1989

INVITED TALKS

Sept. 2015 Keynote Speaker at BYU-wide New Graduate Student Dinner

Jun. 2013 BYU Cancer Research Center Summer Symposium, Provo, UT

Sept. 2012 Utah Valley University College of Science and Health Symposium Series speaker, Orem, UT

Jun. 2012 BYU Cancer Research Center Summer Workshop, Provo, UT

Apr. 2012 Utah Valley University Inauguration of the Richard G. Scott Science Scholarship, Orem, UT

Oct. 2010	Utah State University Department of Biology Seminar, Logan, UT
Oct. 2010	BYU Alumni Board Annual Meeting, Brigham Young University, Provo, UT
Jul. 2010	Brigham Young University Forum Address, Provo, UT
Feb. 2009	Molecular Biology Seminar, Brigham Young University, Provo, UT
Aug. 2007	LDS Life Science Research Symposium, Snowbird, Utah
Nov. 2006	American Society for Matrix Biology Biannual Meeting, Nashville, Tennessee
Oct. 2006	Alice Louise Reynolds Women-In-Scholarship Lecture, Brigham Young University, Provo, UT
Sept. 2005	Brigham Young University, Statistics Dept. Seminar, Provo, UT
Mar. 2003	BYU DNA Sequencing Center Staff Seminar, Provo, Utah
Sept. 2002	Provo Kiwanis Club, Provo, Utah
Sept. 2002	Women In Science Career Options Seminar, Provo, Utah
Oct. 2001	Molecular Biology Seminar Series, BYU, Provo, Utah
Oct. 2000	Brigham Young University Annual High School Science Day, Provo, Utah
July 2000	Brigham Young University Summer Science Camp, Provo, Utah
June 2000	Symposium of the International Society for Matrix Biology, Philadelphia, Pennsylvania
Oct. 1999	Women in Medicine Symposium Series, BYU, Provo, Utah
Nov. 1998	Conference for the Advancement of Science Teachers, Corpus Christi, Texas
Oct. 1998	American Society for Biochemistry and Molecular Biology Fall Symposium, Regulation of Bone Formation, Taos, New Mexico
May 1998	International Science and Engineering Fair, Fort Worth, Texas
Apr. 1998	Department of Zoology, Brigham Young University, Provo, Utah
Mar. 1996	University of Texas Health Science Center at Houston, Graduate School of Biomedical Sciences, Houston, Texas
Nov. 1995	University of Texas Health Science Center at Houston, Graduate School of Biomedical Sciences, Houston, Texas
Jan. 1995	Howard Hughes Medical Institute, University of Utah, Salt Lake City, Utah
Jan. 1995	Department of Zoology, Brigham Young University, Provo, Utah

REASEARCH GRANTS (\$2.4 million total)

“Integrating microbiome analysis into Immunology, Molecular Biology, and Genomics courses to improve student learning”

Co-Principal Investigators: Scott Weber, Laura Bridgewater, Brent Nielsen, and Steve Johnson

Funding Source: BYU College of Life Sciences Teaching Enhancement Grant, 2016

\$8,700

“Diet, gut microbiome, and mental health interactions”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2015-16

\$20,000

“Examining the relative contributions of genes, diet, and the gut microbiome to the development of obesity and diabetes”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2014-15
\$20,000

“Obesity, diabetes, and aging: Contributions of the gut microbiome”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU Gerontology Program, 2014
\$10,000

“Validation of an nBmp2 mutant mouse model”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2013-14
\$20,000

“Transcriptional activity of the novel nuclear protein nBmp2”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2012-13
\$20,000

“Common mechanisms of osteoarthritis in three mouse models”

Principal Investigator: Robert E. Seegmiller; Co-Investigator: Laura Clarke Bridgewater

Funding source: NIAMS/NIH, grant #R15 AR056861, 2009-2011
\$225,000

“A novel nuclear variant of Bmp2: Role in Ca²⁺ transport”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2011-13
\$20,000

“The role of nuclear Bmp2 (nBmp2) in skeletal muscle”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2010-12
\$20,000

“The unfolded protein stress response in chondrodysplasia and osteoarthritis”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2009
\$20,000

“Nuclear function of BMP family proteins”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2008
\$20,000

“MRI: Acquisition of DNA-manipulation robotics for increased throughput and data integrity in biological research, teaching, and student research training”

Principal Investigator: Leigh Johnson, Co-PI: Laura Clarke Bridgewater and three others

Funding Source: NSF, DBI-0520978, 2005-2008
\$337,502

“Chondrocyte-specific transcriptional regulation”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: NIAMS/NIH, grant #RO1 AR 48839, 2002-2008
\$925,000

“Nuclear localization of GDF-5”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2007
\$20,000

“Chondrocyte-specific enhancer elements”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: donor Ira Fulton, 2001-2010
\$200,000

“Pathogenesis of osteoarthritis in *Col2a1* mutant mice”

Co-Principal Investigators: Laura Clarke Bridgewater and Robert E. Seegmiller

Funding Source: NIAMS/NIH, grant #R15 AR47568, 2002-2004
\$146,000

“Transgene rescue of chondrodysplasia and osteoarthritis”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: NIAMS/NIH, grant #RO3 AR 46362, 1999-2002
\$222,000

“Research Supplement for Underrepresented Minorities”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: NIAMS/NIH, supplement to grant #1 RO3 AR 46362, 2000-2002
\$47,820

“Establishing the foundation for treatment of cartilage collagen disorders by gene therapy”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: BYU ORCA, Environments for Mentoring Grants Program, 2001
\$22,700

“Characterization of the role of SOX9 in cartilage differentiation”

Principal Investigator: Laura Clarke Bridgewater

Funding Source: The Damon Runyon Cancer Research Foundation, grant #DRG1464
1997-1999
\$98,500

PUBLICATIONS

1. **Bridgewater, L.C.**, Zhang, C., Wu, Y., Zhang, Q., Hu, W., Wang, J., Li, S., Zhao, L. "Gender-based differences in host behavior and gut microbiota composition in response to high fat diet and stress in a mouse model." (in preparation).
2. Cordner, R.D., Friend, L.N., Mayo, J.L., Stallings, C., Young, P., Miles, D., Badgley, C., Wallmann, A., Ventura, J.S., Chidsey, B.A., Rogers, A.C., Edwards, J.G., & **Bridgewater, L.C.** "The nuclear variant of bone morphogenetic protein 2 (nBMP2) affects cognition in a mouse model." (in revision).
3. Beatty, A., Bowden, A.E., **Bridgewater, L.C.** "Design and validation of a complex loading whole spinal segment bioreactor." *Journal of Biomechanical Engineering*, in press (2016).
4. Long, W., Xue, Z., Zhang, Q., Feng, Z., **Bridgewater, L.C.**, Wang, L., Zhao, L., Pang, X. "Differential responses of gut microbiota to the same prebiotic formula in oligotrophic and eutrophic batch fermentation systems." *Scientific Reports* 5:13469 doi: 10.1038/srep13469 <http://www.nature.com/articles/srep13469> (2015).
5. Olsen, D.S., Goar, W.A., Nichols, B.A., Bailey, K.T., Christensen, S. L., Merriam, K.R., Reynolds, P.R., Wilson, E., Weber, K.S., **Bridgewater, L.C.** "Targeted mutation of nuclear bone morphogenetic protein 2 (nBMP2) impairs secondary immune response in a mouse model." *BioMed Research International* vol. 2015, Article ID 975789, doi:10.1155/2015/975789 <http://www.hindawi.com/journals/bmri/2015/975789/> (2015).
6. Zhang, C., Yin, A., Li, H., Wang, R., Wu, G., Shen, J., Zhang, M., Wang, L., Hou, Y., Ouyang, H., Zhang, Y., Zheng, Y., Wang, J., Lv, X., Wang, Y., Zhang, F., Zeng, B., Li, W., Yan, F., Zhao, Y., Pang, X., Zhang, X., Fu, H., Chen, F., Zhao, N., Hamaker, B.R., **Bridgewater, L.C.**, Weinkove, D., Clement, K., Dore, J., Holmes, E., Xiao, H., Zhao, G., Yang, S., Bork, P., Nicholson, J.K., Wei, H., Tang, H., Zhang, X., Zhao, L. "Dietary modulation of gut microbiota contributes to alleviation of both genetic and simple obesity in children." *EBioMedicine* 2:966-982. <http://dx.doi.org/10.1016/j.ebiom.2015.07.007> (2015).
7. Stolworthy, D.K., Bowden, A.E., Roeder, B.L., Robinson, T.F., Holland, J.G., Christensen, S.L., Beatty, A.M., **Bridgewater, L.C.**, Eggett, D.L., Wendel, J.D., Stieger-Vanegas, S. "MRI evaluation of spontaneous intervertebral disc degeneration in the alpaca cervical spine." *Journal of Orthopaedic Research* <http://onlinelibrary.wiley.com/doi/10.1002/jor.22968/full> (2015).
8. Xue, Z., Zhang, W., Wang, L., Hou, R., Zhang, M., Fei, L., Zhang, X., Huang, H., **Bridgewater, L.**, Jiang, Y., Jiang, C., Zhao, L., Pang, X., and Zhang, Z. "The bamboo-eating giant panda harbors a carnivore-like gut microbiota, with excessive seasonal variations." *mBio* 6:3, doi: 10.1128/mBio.00022-15 <http://mbio.asm.org/content/6/3/e00022-15.full> (2015).
9. Chen, H., Liu, Y., Zhang, M., Wang, G., Qi, Z., **Bridgewater, L.C.**, Zhao, L., Tang, Z, Pang, X. "A

Filifactor alocis-centered co-occurrence group associates with periodontitis across different oral habitats." *Scientific Reports* 5:9053, doi: 10.1038/srep09053 <http://www.nature.com/articles/srep09053> (2015).

10. Stolworthy, D.K., Fullwood, R.A., Merrell, T.M., **Bridgewater, L.C.**, & Bowden, A.E. "Biomechanical comparison of the camelid and human intervertebral disc." *Journal of Orthopaedic Translation* 3:34-43, <http://dx.doi.org/10.1016/j.jot.2014.12.001> (2014).
11. **Bridgewater, L.C.**, Mayo, J.L., Evanson, B.G., Whitt, M.E., Dean, S.A., Yates, J.D., Holden, D.N., Schmidt, A.D., Fox, C.L., Dhunghel, S., Steed, K.S., Adam, M.M., Nichols, C.A., Loganathan, S.K., Barrow, J.R., & Hancock, C.R. "A novel bone morphogenetic protein 2 mutant mouse, nBmp2NLStm, displays impaired intracellular Ca²⁺ handling in skeletal muscle." *BioMed Research International*. Volume 2013, article ID 125492 <http://dx.doi.org/10.1155/2013/125492> (2013).
12. Ricks, M.S., Farrell, J.T., Falk, D.J., Holt, D.W., Rees, M., Carr, J., Williams, T., Nichols, B.A., **Bridgewater, L.C.**, Reynolds, P.R., Kooyman, D.L., & Seegmiller, R.E. "Osteoarthritis in the temporomandibular joint of *Col2a1* mutant mice." *Archives of Oral Biology*. 58:1092-1099 <http://www.sciencedirect.com/science/article/pii/S0003996913000666> (2013).
13. Holt, D.W., Henderson, M.L., Stockdale, C.E., Farrell, J.T., Kooyman, D.L., **Bridgewater, L.C.**, & Seegmiller, R.E. "Osteoarthritis-like changes in the heterozygous *sedc* mouse associated with the HtrA1-Ddr2-Mmp-13 degradative pathway: a new model of osteoarthritis." *Osteoarthritis and Cartilage* 20:430-439 <http://www.sciencedirect.com/science/article/pii/S1063458411003207> (2012).
14. Felin, J.E., Mayo, J.L., Loos, T.J., Jensen, J.D., Sperry, D.K., Gaufin, S.K., Meinhart, C.A., Moss, J.B., **Bridgewater, L.C.** "Nuclear variants of bone morphogenetic proteins." *BMC Cell Biology* 11:20, <http://www.biomedcentral.com/1471-2121/11/20> (2010).
15. Muller, P., Crofts, J.D., Newman, B.S., **Bridgewater, L.C.**, Lin, C-Y, Gustafsson, J-A, & Strom, A. "SOX9 mediates the retinoic acid-induced HES-1 gene expression in human breast cancer cells." *Breast Cancer Research and Treatment* 120:317-326 <http://link.springer.com/article/10.1007%2Fs10549-009-0381-6> (2010).
16. Mayo, J.L., Holden, D.N., Barrow, J.R., and **Bridgewater, L.C.** "The transcription factor Lc-Maf participates in *Col27a1* regulation during chondrocyte maturation." *Experimental Cell Research* 315:2293-2300 <http://www.sciencedirect.com/science/article/pii/S0014482709001724> (2009).
17. Seegmiller, R.E., Bomsta, B.D., **Bridgewater, L.C.**, Niederhauser, C.M., Montañó, C., Sudweeks, S., Eyre, D.R., and Fernandes, R.J. "The hererozygous disproportionate micromelia (Dmm) mouse: Morphological changes in fetal cartilage precede postnatal dwarfism and compared to lethal homozygotes can explain the mild phenotype." *Journal of Histochemistry and Cytochemistry* 56:1003-1011 <http://ihc.sagepub.com/content/56/11/1003.long> (2008).

18. Genzer, M.A., **Bridgewater, L.C.** "A COL9A1 enhancer element activated by two interdependent SOX9 dimers." *Nucleic Acids Research* 35:1178-1186 <http://nar.oxfordjournals.org/content/35/4/1178.long> (2007).
19. Bomsta, B.D., **Bridgewater, L.C.**, and Seegmiller, R.E. "Premature osteoarthritis in the Disproportionate micromelia (*Dmm*) mouse." *Osteoarthritis and Cartilage* 14:477-485 <http://www.sciencedirect.com/science/article/pii/S1063458405003250> (2006).
20. Jenkins, E., Moss, J., Pace, J.M., and **Bridgewater, L.C.** "The new collagen gene COL27A1 contains SOX9-responsive enhancer elements." *Matrix Biology* 24:177-184 <http://www.sciencedirect.com/science/article/pii/S0945053X05000338> (2005).
21. Akiyama, H., Kamitani, T., Yang, X., Kandyil, R., **Bridgewater, L.C.**, Fellous, M., Mori-Akiyama, Y., and de Crombrughe, B. "The transcription factor Sox9 is degraded by the ubiquitin-proteasome system and stabilized by a mutation in a ubiquitin-target site." *Matrix Biology* 23:499-505 <http://www.sciencedirect.com/science/article/pii/S0945053X04001246> (2005).
22. Harris, L.R., Kamarainen, O., Sevakivi, M., Miller, G.C., Clarke, J.W., Potter, J.L., and **Bridgewater, L.C.** "A novel retinoic acid-response element requires an enhancer element mediator for transcriptional activation." *Biochemical Journal* 383:37-43 (2004).

The above paper was featured in an accompanying online commentary by Chris P.F. Redfern, "Enhancing enhancers: new complexities in the retinoid regulation of gene expression." *Biochemical Journal* 383:e1-e2 (2004).
23. Rodriguez, R.R., Seegmiller, R.E., Stark, M.R., and **Bridgewater, L.C.** "A type XI collagen mutation leads to increased degradation of type II collagen in articular cartilage." *Osteoarthritis and Cartilage* 12:314-320 (2004).
24. **Bridgewater, L.C.**, Walker, M.D., Miller, G.C., Ellison, T.A., Holsinger, L.D., Potter, J.L., Jackson, T.L., Chen, R.K., Winkel, V.L., Zhang, Z., McKinney, S., and de Crombrughe, B. "Adjacent DNA sequences modulate Sox9 transcriptional activation at paired Sox sites in three chondrocyte-specific enhancer elements." *Nucleic Acids Research* 31:1541-1552 (2003).
25. Ricks, J.E., Ryder, V.M., **Bridgewater, L.C.**, Schaalje, B., and Seegmiller, R.E. "Altered mandibular development precedes the time of palate closure in mice homozygous for disproportionate micromelia: an oral clefting model supporting the Pierre-Robin sequence." *Teratology* 65:116-120 (2002).
26. **Bridgewater, L.C.**, Lefebvre, V., and de Crombrughe, B. "Chondrocyte-specific enhancer elements in the *Col11a2* gene resemble the *Col2a1* tissue-specific enhancer." *Journal of Biological Chemistry* 273:14998-15006 (1998).
27. **Bridgewater, L.C.**, Manning, F.C.R., and Patierno, S.R. "Arrest of replication by mammalian DNA polymerases α and β caused by chromium-DNA lesions." *Molecular Carcinogenesis* 23:201-206 (1998).

28. Singh, J.T., **Bridgewater, L.C.**, and Patierno, S.R. "Differential sensitivity of chromium-mediated DNA interstrand crosslinks and DNA-protein crosslinks to disruption by alkali and EDTA." *Toxicological Sciences* 45:72-76 (1998).
29. **Bridgewater, L.C.**, Manning, F.C.R., and Patierno, S.R. "Base-specific arrest of *in vitro* DNA replication by carcinogenic chromium: Relationship to DNA interstrand crosslinking." *Carcinogenesis* 15:2421-2427 (1994).
30. **Bridgewater, L.C.**, Manning, F.C.R., Woo, E.S., and Patierno, S.R. "DNA polymerase arrest by adducted trivalent chromium." *Molecular Carcinogenesis* 9:122-133 (1994).
31. Patierno, S.R., Blankenship, L.J., Wise, J.P., Xu, J., **Bridgewater, L.C.**, and Manning, F.C.R. "Genotoxin-induced apoptosis: Implications for carcinogenesis." In Hu, V.W. (ed.) *The Cell Cycle: Regulators, Targets and Clinical Applications*, Plenum Press, New York, pp. 331-340 (1994).
32. Manning, F.C.R., Blankenship, L.J., Wise, J.P., Xu, J., **Bridgewater, L.C.**, and Patierno, S.R. "Induction of internucleosomal DNA fragmentation by carcinogenic chromate: Relationship to DNA damage, genotoxicity, and inhibition of macromolecular synthesis." *Environmental Health Perspectives* 102:159-167 (1994).
33. **Clarke*, L.**, Hepworth, W.B., Carey, J.C., and Seegmiller, R.E. "Chondrodystrophic mice with coincidental agnathia: Evidence for the tongue obstruction hypothesis in cleft palate." *Teratology* 38:565-570 (1988) [*Clarke is maiden name].

ABSTRACTS/POSTER PRESENTATIONS

1. Bowden, A.E., Beatty, A.M., Bridgewater, L.C. "Design and validation of a complex loading whole spinal segment bioreactor." Philadelphia Spine Research Symposium, held in conjunction with the Orthopaedic Research Society. Philadelphia, Pennsylvania (2015).
2. Hancock, J., Cook, M., Grose, J., Bridgewater, L.C., and Weber, K.S. "Role of PAS kinase and metabolism on immune cells." Autumn Immunology Conference. Chicago, Illinois (2015).
3. Rees, A., Franson, J., White, J., Ong, K.L., Choksi, N., Hilton, A., Grose, J., and Bridgewater, L.C. "The role of PAS kinase and the gut microbiome in metabolism and diabetes onset in mice. American Society for Microbiology. New Orleans, Louisiana (2015).
4. Yates, J.D. **Bridgewater, L.C.** "Evidence for a nuclear variant of decapentaplegic (dpp)." Southwest Regional Meeting of the Society for Developmental Biology. Aurora, Colorado (2014).
5. Mayo, J.L., Nichols, B.A., Olsen, D.S., Cordner, R.D., Hancock, C.R., Weber, K.S., Wilson, E., Edwards, J.G., Barrow, J.R., and **Bridgewater, L.C.** "The nBMP2 mutant mouse shows defects in intracellular calcium transport-regulated pathways." Southwest Regional Meeting of the Society for Developmental Biology. Aurora, Colorado (2014).
6. **Bridgewater, L.C.**, Christensen, S.L., Stolworthy, D.K., Fullwood, R.A., Merrell, T.M., Holland J.G., Harmon, L.M., Robinson, T., Bowden, A.E. "Development of an alpaca disc culture system for the study of intervertebral disc degeneration." Second International Spine Research Symposium, Philadelphia Spine Research Society. Philadelphia, Pennsylvania (2013).

7. Bowden, A.E, Stolworthy, D.K., Fullwood, R.A., Merrell, T.M., Robinson, T.F., Christensen, S.L., Holland J.G., **Bridgewater, L.C.** "Development of an alpaca disc culture system for the study of intervertebral disc degeneration." Orthopaedic Research Society Annual Meeting, San Antonio, Texas (2013).
8. Stolworthy, D.K., Fullwood, R.A., Merrell, T.M., Bowden, A.E., **Bridgewater, L.C.** "Mechanical parallels for a camelid cervical spine model of lumbar disc degeneration." Second International Spine Research Symposium, Philadelphia Spine Research Society. Philadelphia, Pennsylvania (2013).
9. Fullwood, R.A., Stolworthy, D.K., Bowden, A.E., and **Bridgewater, L.C.** "Alpaca cervical spine anatomy: Shape, size, AF/NP ratio." Emerging Ideas in Biomedical Research Conference, BYU, Provo, UT (2013). **(1st place prize in the poster competition.)**
10. Christensen, S.L., Holland, J.G., Fullwood, R.A., Stolworthy, D.K., Bowden, A.E., Robinson, T.F., and **Bridgewater, L.C.** "Development of an alpaca disc culture system for the study of intervertebral disc degeneration." Emerging Ideas in Biomedical Research Conference, BYU, Provo, UT (2013). **(2nd place prize in the poster competition.)**
11. Olsen, D.S., Bailey, K.T., Nichols, B.A., and **Bridgewater, L.C.** "Lack of nuclear BMP-2 causes reduced spleen size." American Society for Biochemistry and Molecular Biology Annual Meeting, Boston, Massachusetts (2013).
12. Nichols, B.A., Goar, W.A., McCune, B.T., and **Bridgewater, L.C.** "Nuclear localized BMP2 promotes cell cycle progression. American Society for Biochemistry and Molecular Biology Annual Meeting, Boston, Massachusetts (2013).
13. Rogers, A.C., Nichols, B.A., Loos, T.J., and **Bridgewater, L.C.** "Nuclear Bmp4 interacts with the SCF E3 ubiquitin ligase complex and inhibits the cell cycle." American Society for Biochemistry and Molecular Biology Annual Meeting, San Diego, California (2012).
14. Ricks, M.L., Falk, D.J., Farrell, J.T., Rees, M.B., Carr, J.M., Williams, D.T., Kooyman, D.L., **Bridgewater, L.C.**, and Seegmiller, R.E. "Premature osteoarthritis in the temporomandibular joint of heterozygous disproportionate micromelia mice." American Society for Biochemistry and Molecular Biology Annual Meeting, San Diego, California (2012).
15. Loos, T.J., and **Bridgewater, L.C.** "Nuclear Bmp4 (nBmp4) interacts with the SCF E3 ubiquitin ligase." American Society for Matrix Biology meeting, Charleston, South Carolina (2010).
16. Loos, T.J., and **Bridgewater, L.C.** "Nuclear Bmp4: a novel ROC1 and ROC2 binding partner." American Society for Biochemistry and Molecular Biology Annual Meeting, Anaheim, California (2010).
17. Corder, R.D., Ventura, J., Blickenstaff, J., Walther, C., Mayo, J.L., Felin, J.E., Andreasen, B., Wallace, N., Cappechi, M.R., Edwards, J.G., and **Bridgewater, L.C.** "Mice bearing a targeted mutation of nBmp2 display decreased memory capabilities. American Society for Biochemistry and Molecular Biology Annual Meeting, Anaheim, California (2010).
18. Baldwin, M. and **Bridgewater, L.C.** "Identification of a consensus DNA binding sequence for nGdf5." American Society for Biochemistry and Molecular Biology Annual Meeting, Anaheim, California (2010).
19. McCune, B.T., Finley, M., Schmidt, A.D., Fox, C., Mayo, J.L., and **Bridgewater, L.C.** "Binding of nBmp2 to PLSCR1 suggests a possible mechanism for nBmp2 regulation of calcium-modulating proteins." American Society for Biochemistry and Molecular Biology Annual Meeting, Anaheim, California (2010).
20. Evanson, B.G., Schmidt, A.D., Mayo, J.L., **Bridgewater, L.C.**, and Hancock, C.R.. "Nuclear bone morphogenetic protein 2 mutant mice exhibit slowed skeletal muscle relaxation and decreased tetany in the gastrocnemius, plantaris, soleus muscle complex." American Society for Biochemistry and Molecular Biology Annual Meeting, Anaheim, California (2010).
21. Schmidt, A.D., Loganathan, S.K., Adam, M.M., Nichols, C.A., Mayo, J.L., Felin, J.E., Cappechi, M.R., Barrow, J.R., and **Bridgewater, L.C.** "Mice bearing a targeted inactivation of nBmp2 show decreased muscle strength." American Society for Biochemistry and Molecular Biology Annual Meeting, New Orleans, Louisiana (2009).
22. Holden, D.N., Mayo, J.L., Barrow, J.R., and **Bridgewater, L.C.** "The transcription factor Lc-Maf participates in *Col27a1* regulation during chondrocyte maturation." American Society for Biochemistry and Molecular Biology Annual Meeting, New Orleans, Louisiana (2009).

23. Davis, E.D., Fonhoue, B.S.D., Felin, J.E., McCune, B.T., and **Bridgewater, L.C.** "Nuclear Bmp2 (nBmp2) alters the expression of several genes." American Society for Biochemistry and Molecular Biology Annual Meeting, New Orleans, Louisiana (2009).
24. Adam, M.M., Nichols, C.A., Schmidt, A.D., Logonathan, S.K., Thomson, D., Capecchi, M.R., Barrow, J.R., and **Bridgewater, L.C.** "Mice with targeted inactivation of nBmp2 exhibit increased daytime activity." American Society for Biochemistry and Molecular Biology Annual Meeting, New Orleans, Louisiana (2009).
25. Cordner, R.D., Loos, T.J., and **Bridgewater, L.C.** "ROC1 and ROC2: Interactions with the nuclear variant of Bmp4." American Society for Biochemistry and Molecular Biology Annual Meeting, New Orleans, Louisiana (2009).
26. Loos, T.J., and **Bridgewater, L.C.** "Determining the function of nuclear Bmp4." American Society for Biochemistry and Molecular Biology Annual Meeting, New Orleans, Louisiana (2009).
27. Mayo, J.L., Wilkinson, S., Felin, J.E., Lin, C.-Y., and **Bridgewater, L.C.** "A potential role for the nuclear variant of Bmp2 (nBmp2) in carcinogenesis." American Association for Cancer Research Annual Meeting, Los Angeles, California (2007).
28. Sudweeks, T.J. and **Bridgewater, L.C.** "A novel nuclear variant of Bmp4." American Association for Cancer Research Annual Meeting, Los Angeles, California (2007).
29. Jensen, J.D., Sperry, D.K., Hansen, J.D., Davis, R.E., Felin, J.E., and **Bridgewater, L.C.** "Nuclear localization of GDF5 is mediated by a bipartite nuclear localization signal." American Association for Cancer Research Annual Meeting, Los Angeles, California (2007).
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31. **Bridgewater, L.C.**, Mayo, J.L., and Felin, J.E. "Nuclear localization of Bmp2." American Society for Matrix Biology Biannual Meeting, Nashville, Tennessee (2006).
32. Seegmiller, R.E., Niederhauser, C.M., Montaño, C., Bomsta, B.D., Wink, A.E., Sudweeks, S.N., and **Bridgewater, L.C.** "Aggrecan expression in *Dmm* mice." American Society for Matrix Biology Biannual Meeting, Nashville, Tennessee (2006).
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34. Mayo, J.L., Barrow, J.R., and **Bridgewater, L.C.** "Coordinate regulation of *Col11a2* and *Col27a1* by the transcription factor Lc-Maf." American Society for Biochemistry and Molecular Biology Annual Meeting, San Francisco, California (2006).
35. Niederhauser, C.M., Montaño, C., Bomsta, B.D., Seegmiller, R.E., Sudweeks, S.N., and **Bridgewater, L.C.** "Aggrecan 1 expression in *Dmm* mice." American Society for Biochemistry and Molecular Biology Annual Meeting, San Francisco, California (2006).
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37. Ellertson, B.D., Felin, J.E., Kubo, C., Merrell, K., and **Bridgewater, L.C.**, "Identification of proteins that bind a *Col11a2* enhancer element." American Society for Biochemistry and Molecular Biology Annual Meeting, San Francisco, California (2006).
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39. Kubo, C., Richins, S., and **Bridgewater, L.C.** "A new transcriptional regulator of the *Col11a2* gene." American Society for Biochemistry and Molecular Biology Annual Meeting, San Diego, California (2005).
40. Kunz, W.B., Meinhart, C., Olsen, J., and **Bridgewater, L.C.** "Identification of proteins that bind a chondrocyte-specific enhancer element." American Society for Biochemistry and Molecular Biology Annual Meeting, San Diego, California (2005).
41. Rogers, C.D., Mason, B., Timme, D., and **Bridgewater, L.C.** "Identification of candidate transcriptional

- regulators of the *Col11a2* gene. American Society for Biochemistry and Molecular Biology Annual Meeting, San Diego, California (2005).
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 43. Haberle, T., Tait, M.A., Moss, J.B., and **Bridgewater, L.C.** "The transcription factor MyoD binds to a cartilage-specific enhancer element. American Society for Biochemistry and Molecular Biology Annual Meeting, San Diego, California (2005).
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 45. Bomsta, B., **Bridgewater, L.C.**, Fernandes, R. and Seegmiller, R.E. "Structural changes in fetal growth cartilage precede postnatal dwarfism in mice heterozygous for Disproportionate micromelia. American Society for Matrix Biology Semiannual Meeting, San Diego, California (2004).
 46. Bomsta, B.D., Gessel, L., **Bridgewater, L.C.**, and Seegmiller, R.E. "Histopathological changes in relation to proteoglycan degradation in articular cartilage of disproportionate micromelia mice as a predisposing factor leading to osteoarthritis" Osteoarthritis Research Society International Annual Meeting, Chicago, Illinois (2004)
 47. Jenkins, E., Pace, J.M., and **Bridgewater, L.C.** "SOX9 regulates transcription of the new minor fibrillar collagen gene, *COL27A1*." American Society for Biochemistry and Molecular Biology Annual Meeting, Boston, Massachusetts (2004).
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 51. Crosby, B., Vaughn, S., **Bridgewater, L.C.**, and Seegmiller, R.E. "Mice bearing a type XI collagen mutation show premature deterioration of the femoral articular surface. American Society for Matrix Biology Annual Meeting, Houston, Texas (2002).
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 53. Harris, L.R., Miller, G.M., and **Bridgewater, L.C.** "A *cis*-acting element in the 5' region of the *Col11a2* gene acts cooperatively with two known enhancers." American Society for Matrix Biology Annual Meeting, Houston, Texas (2002).
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 64. Seegmiller, R.E., Ryder, V., and **Bridgewater, L.C.** "Histological and ultrastructural evidence of osteoarthritis in mice carrying a semi-dominant mutation of *Col2a1*." Gordon Research Conference on Signal Transduction by Engineered Extracellular Matrices, Tilton, New Hampshire (2000).
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susceptibility: Search for mutations in the M-type pyruvate kinase gene." American Society of Human Genetics (1996).

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76. Manning, F.C.R., Blankenship, L.J., Wise, J.P., Xu, J., **Bridgewater, L.C.**, and Patierno, S.R. "Induction of apoptosis by carcinogenic chromate: Relationship to genotoxicity, cell cycle delay, and inhibition of macromolecular synthesis." Second International Meeting on Molecular Mechanisms of Metal Toxicity and Carcinogenicity (1993).
77. **Bridgewater, L.C.**, Manning, F.C.R., and Patierno, S.R. "Analysis of the effect of chromium-DNA adducts on *in vitro* DNA replication using a *Taq* polymerase stop assay." American Association for Cancer Research Annual Meeting, San Diego, CA (1992).

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Academic Record:

University of Utah, Salt Lake City, UT	B.A. Physics & Honors (Cum laude) 1974
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2011-2013	Adjunct Professor Research, Touro University Nevada
2004 - present	Professor, Department of Physiology and Developmental Biology, Brigham Young University, Provo, Utah
1999 - present	Professor, Center for Neuroscience, Brigham Young University, Provo, UT
1996 - 2004	Professor, Zoology Department, Brigham Young University, Provo, UT
1995 - 1996	Associate Professor, Zoology Department, Brigham Young University, Provo, UT
1989 - 1995	Associate Professor with Tenure, Department of Physiology, Brown University, Providence, RI
1983-1989	Assistant Professor, Section of Physiology and Biophysics Brown University, Providence, RI
1980-1983	Research Associate, Department of Physiology and Biophysics University of Texas Medical Branch, Galveston, TX
1978-1980	Postdoctoral Fellow, Department of Physiology University of Rochester Medical School, Rochester, NY

Honors and Awards:

Markey Fellow, Mount Dessert Island Biological Laboratory, 1985
NIH Research Career Development Award, 1986-1991
Alcuin Fellowship for General Education Teaching (BYU), 2001-2003
Excellence in Research Award, College of Biology and Agriculture (BYU), 2002
Thomas B. Martin Professorship, College of Biology and Agric. (BYU), 2003-2006
Distinguished Faculty Award, Dept. of PDBio (BYU), 2010
Outstanding Research Award, College of Life Sciences (BYU), 2014

Editorial Positions:

Editor in Chief, Molecular Modeling and Computational Chemistry Review. 1997 – 2007
Associate Editor, Biochimica et Biophysica Acta, 1999-2004
Editorial Board, The Open Journal of Structural Biology, Bentham Press, 10/2007-2012
Editorial Board Member, Journal of Membrane Biology 2008-2015

Articles in journals (yellow: undergrads; cyan: graduate students):

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16. Busath, D.D. and E. Hayon. 1988. Ultraviolet flash photolysis of gramicidin-doped lipid bilayers. *Biochim. Biophys. Acta* 944:73-78.
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61. Miller, C.E., D.D. Busath, B. Strongin, and J. Majewski. 2008. Integration of Ganglioside GT_{1b} Receptor into DPPE and DPPC Phospholipid Monolayers: An X-ray Reflectivity and Grazing Incidence Diffraction Study. *Biophysical Journal* 95:3278-3286.
62. Mustafa, M. and D.D. Busath. 2009. The gramicidin channel ion permeation free-energy profile: direct and indirect effects of CHARMM force field improvements. *Interdisciplinary Science: Computational Life Sciences* 1:113-127.
63. Mustafa M., D.J. Henderson, and D.D. Busath. 2009. Free-energy profiles for ions in the influenza M₂-TMD channel. *Proteins* 76:794-807.
64. Mustafa M., D.J. Henderson, and D.D. Busath. 2009. Computational studies of gramicidin permeation: An entryway sulfonate enhances cation occupancy at entry sites. *Biochim. Biophys. Acta.* 1788:1404-1412.
65. Spohr, E., E. Sovyak, A. Trokhymchuk, and D.D. Busath. 2009. Electrostatic control of occupancy and valence selectivity in a charged nanometer-sized cylindrical pore. *Materialwissenschaft und Werkstofftechnik* 40: 247-254.
66. Jones, T.L., R. Fu, F. Nielson, T.A. Cross, and D.D. Busath. 2010. Gramicidin channels are internally gated. *Biophys. J.* 98:1486-1493.

67. Sharma, M., M. Yi, D. Hao, H. Qin, E. Peterson, D. D. Busath, H.-X. Zhou, and T. A. Cross. 2010. Insights into the mechanism of the influenza A proton channel from a structure in a lipid bilayer. *Science* 330:509-512.
68. Peterson, E., T. Ryser, S. Funk, D. Inouye, M. Sharma, H. Qin, T. A. Cross, and D. D. Busath, Functional reconstitution of influenza A M2(22-62). 2011. *Biochim. et Biophys. Acta, Biomembranes* 1808:516-521 (Published electronically 2010).
69. Sharma M, C. Li, D. D. Busath, H.-X. Zhou, and T. A. Cross. 2011. Drug sensitivity, drug-resistant mutations, and structures of three conductance domains of viral porins. *Biochim. et Biophys. Acta., Biomembranes* 1808:538-546.
70. Mellor, B., E. Cruz Cortés, D. D. Busath, and B. Mazzeo. 2011. Method for estimating the internal permittivity of proteins using dielectric spectroscopy. *J. Phys. Chem. B.* 115:2205-2213.
71. Mellor, B. L., S. Khadka, D. D. Busath, and B. Mazzeo. 2011. Influence of pKa shifts on the calculated dipole moments of proteins. *Protein Journal* 30:490-498.
72. Nelson, S. C., S. K. Neeley, E. D. Melonakos, J. D. Bell, and D. D. Busath. 2012. Fluorescence anisotropy of diphenylhexatriene and its cationic trimethylamino derivative in liquid dipalmitoylphosphatidylcholine liposomes: Opposing responses to isoflurane. *BMC Biophysics* 5:5.
73. Cross, T. A., H. Dong, M. Sharma, D. D. Busath, H.-X. Zhou. 2012. M2 Protein from Influenza A: From multiple structures to biophysical and functional insights. *Current Opinions Virology* 2:128-133.
74. Mazzeo, B. A. and D. D. Busath. 2013. From molecular dynamics to fluorescence anisotropy of fluorophores bound to oriented structures. *J. Comp. Phys.* 232:482-497.
75. Shin, S. I., Andersen, D. J., Hansen, D. M., Yorgason, J. T., Schilaty, N. D., Busath, D. D., and S. C. Steffensen. 2013. Connexin-36 knock-out mice have increased threshold for kindled seizures: Role of GABA inhibition. *Biochem & Pharmacol* S1: 006. doi:10.4172/2167-0501.S1-006.
76. Kolocouris, A., Tzitzoglaki, C., Johnson, B., Zell, R., Wright, A., Cross, T.A., Tietjen, I., Fedida, D. & D. Busath. 2014. Adamantanes with persistent in vitro efficacy against H1N1 (2009) Influenza A. *J. Med. Chem.* 57:4629-4639.
77. Gleed, M. and D. D. Busath. 2015. Why bound amantadine fails to inhibit proton conductance according to simulations of the drug-resistant influenza A M2 (S31N). *J. Phys. Chem. B* 119 (3):1225-31.
78. Durrant, M.G., Eggett, D.L., and D.D. Busath. 2015. Investigation of a recent rise of dual amantadine-resistance mutations in the Influenza A M2 Sequence. *BMC Genetics* 16 (Suppl. 2): S3.
79. Gleed, M. L., Ioannidis, H., Kolocouris, A., and D.D. Busath. 2015. Resistance-mutation (N31) effects on drug orientation and channel hydration in amantadine-bound influenza A M2. *J. Phys. Chem. B* 119: 11548-11559.

Opinions/Editorials

1. Andersen O. S., H. J. Apell, E. Bamberg, D. D. Busath, R. E. Koeppe 2nd, F. J. Sigworth, G. Szabo, D. W. Urry, and A. Woolley. 1999. Gramicidin channel controversy--the structure in a lipid environment. *Nat Struct Biol.* 6:609; discussion 611-2.
2. Separovic, F., J. A. Killian, M. Cotten, D. D. Busath, and T. A. Cross. 2011. Modeling the membrane environment for membrane proteins. *Biophysical Journal* 100:2073-2074.
3. Busath D. D., D. J. Woodbury, and A. Frost. 2012. Endosis and exosis: new names for fusion and budding. *J Membr Biol.* 245:759-760.

Chapters in Books, Invited Reviews, Proceedings, Etc.:

- Szabo, G. and D.D. Busath. 1983. Ion movement through membrane channels. In: "Membrane Biophysics: Physical Methods in the Study of Biophysical Systems." M.A. Dinno, A.B. Callahan, T.C. Rosell, Eds. Alan R. Liss, Inc., New York.
- Busath, D., Hemsley, G., Bridal, T., Pear, M., Gaffney, K. and M. Karplus. 1988. Guanidinium as a probe of the gramicidin channel interior. In: "Transport through Membranes: Carriers, Channels and Pumps." A. Pullman, J.J. Jortner, B. Pullman Eds. Kluwer Academic Publishers, Boston (Norwell, MA 02061).
- Chen, I. and D. Busath. 1990. Animating a cellular transport mechanism. *Pixel* 1:16-23.
- Busath, D.D. 1993. The use of physical methods in determining gramicidin channel structure and function. *Annual Reviews of Physiology* 55:473-501.
- Henderson, D., D. D. Busath, R. L. Rowley, P. S. Crozier, and D. Boda. 2001. Simulation study of channels in biological membranes. *Proceedings of the International Conference on Computational Nanoscience*. Pp. 45-48.
- Yang, Y., Boda, D., Henderson, D. and D. Busath. 2002. Computer simulation studies of the selectivity and conductance of a model calcium channel. *Journal of Computational Electronics*. 1: 353-357.
- Caywood, D. and D.D. Busath. 2002. Oriented Gramicidin M - Gramicidin A heterodimers: Rectification decreases with increased ion concentration. In: "Membrane Interacting Peptides and Proteins 2002." F. Heitz, ed., Research Signpost, Kerala, India. Pp 147-153.
- Boda, D., Busath, D.D., and Henderson. 2002. Simulation of the selectivity of a calcium channel. *Applied Surface Science* 196:154-156.
- Yang, Y., D. Henderson, and D.D. Busath. 2004. Calcium block of sodium current in a model calcium channel: Cylindrical atomistic pore with glutamate side chains. *Molecular Simulations* 30:75-80.
- Boda D., T. Varga, D. Henderson, D.D. Busath, W. Nonner, D. Gillespie, and B. Eisenberg. 2004. Monte Carlo simulation study of a system with a dielectric boundary: Application to ion channel selectivity. *Molecular Simulations* 30:89-96.
- Busath, D., D. Henderson, and S. Sokolowski. 2004. Density functional theory for an electrolyte in a cylinder: The selectivity of a calcium channel. *J. Phys.: Condens. Matter* 16: S2193-S2201.

Busath, D. D. 2009. Influenza A M2: Channel or Transporter? In “Advances in Planar Lipid Bilayers and Liposomes,” A. Leitmannova Liu and Aleš Iglič, editors, Burlington: Academic Press,10:161-201.

Grants Awarded:

9/1/78 - 8/31/80	NIH NRSA 5F32 NS-06084-02 Postdoctoral Fellowship The sodium flux ratio in squid axon sodium channels. Sponsor: Ted Begenisich. \$26,300.
7/1/83 - 6/30/85	American Heart Association, Texas Affiliate The pore structure in transmembrane channels. P.I. David Busath. \$53,906, direct costs.
8/1/83 - 7/31/86	NIH 1 RO1 GM33361 Molecular interactions inside a transmembrane pore. P.I. David Busath. \$166,088, direct costs.
6/1/85 - 7/31/85	Mount Desert Island Biol. Lab. Markey Fellowship. The photolysis of transmembrane channels in nerve and oocyte. P.I. David Busath. \$5,000, direct costs.
7/1/86 - 6/30/91	NIH 1 K04 NS01085 Research Career Development Award Gramicidin channel blockade induced by guanidinium. P.I. David Busath. \$261,198, direct costs.
8/1/86 - 7/31/91	NIH R01 GM33361 Molecular interactions inside a transmembrane pore. P.I. David Busath. \$421,517, direct costs.
4/1/87 - 3/31/88	NIH BRS Shared Instrumentation Grant Peptide Synthesizer and Peptide Sequencer. P.I. Wayne Bowen. \$101,000, direct costs.
12/1/88 - 11/30/89	NIH DRR BRS Shared Instrumentation Grant. Molecular Modeling Network. P.I. John W. Suggs. \$81,080, direct costs.
3/1/95 - 2/28/00	NIH RO1 AI 23007 Correlations: Structures-Dynamics-Functions in Gramicidin P.I. Timothy A. Cross; Sub-contract P.I. David Busath. \$1,067,657 total costs. \$213,215, total costs in the Brown/BYU subcontract.
10/1/96-9/30/99	NSF Academic Research Infrastructure. Acquisition of a Computational Chemistry Server. P.I. Randall B. Shirts; Co-P.I. David Busath and others. \$100,000 direct costs. (Matched by BYU matching funds)
3/1/00-2/29/05	NIH RO1 AI 23007 Correlations: Structure-Dynamics-Functions in Channels. P.I. Timothy A. Cross; Sub-contract P.I. David Busath. \$1,771,739 total costs. \$462,353 total costs in the BYU subcontract.
4/1/00-3/31/03	NSF Research Experience for Undergraduates (REU Site) “Neuroscience Research Experiences for Undergraduates Site at BYU” P.I. Edwin Lephart, \$237,829 total costs.
3/1/01-12/31/01	BYU “Neuroscience Environment for Mentoring” P.I. Edwin Lephart, \$34,650.00 total costs.

3/1/05-2/29/10	NIH RO1 AI 23007 Correlations: Structure-Dynamics-Functions in Channels. P.I. Timothy A. Cross; Sub-contract P.I. David Busath. \$1,805,550 total costs. \$353,827 total costs in the BYU subcontract.
1/1/08-9/1/08	Botulinum Toxin Research Associates Subcutaneous Botox Effects on Electrically Induced Seizures. P.I. David Busath; co-P.I. Scott Steffensen \$16,000 total costs.
8/1/11-7/31/15	NIH RO1 AI 23007 Correlations: Structure-Dynamics-Functions in Channels. P.I. Timothy A. Cross; Sub-contract P.I. David Busath. ~\$500,000 total costs in the BYU subcontract.

Internal funding:

Mentoring Environment Grants from ORCA, BYU of \$20,000 in 2004, 2006, 2008, 2011, 2012, and 2014

Robert Gardner Fund from the College of Life Sciences, BYU of \$30,000 in 2009 to search for mechanisms of food intolerance

Seed award of \$10,000 from the Fulton College of Engineering, BYU to Brian Mazzeo and me for “Dielectric Spectroscopy Assessment of Influenza A M2 Drug Binding” in 2010

Capital equipment award from Depts. of PDBio and Chem/Biochem, BYU of \$90,000 to Dixon Woodbury and me for a circular dichroism spectrometer in 2010

Tech Transfer Bridging Award of \$25,000 for development of influenza drugs in 2012

Capital equipment award from Dept. of PDBio, BYU of \$18,500 to John Bell and me for a fluorescence lifetime spectrophotometer in 2013

Student Entrepreneur Mentoring Award from the BYU Rollins Center of \$5,000 in 2014

CHIRP Award from Dept. of Chemistry and Biochemistry, BYU of \$20,000 to spark translational research to Roger Harrison and me in 2014

Research award from the Magnetic Resonance Imaging Facility, BYU of \$1,000 to help initiate an fMRI study of chronic pain in 2014; additional \$9,000 in 2015.

Gift from the Sorenson Legacy Foundation, 2016, \$25,000 for “New methods to block neuropathic pain.”

Invited Lectures:

9/1985	“Guanidinium Blocks in Gramicidin Channels”. Department of Physiology, Emory University, Atlanta, GA.
11/1985	“Iminium Ion Blocks in Gramicidin Channels”. Department of Physiology, Yale University, New Haven, CT.
3/1986	“Small iminium ions block gramicidin channels in lipid bilayers”. Department of Pharmacology and Toxicology. Dartmouth Medical School. Hanover, NH.
5/1988	“Guanidinium as a probe of the gramicidin channel interior”. Jerusalem Symposium on Quantum Chemistry and Biochemistry, Jerusalem, Israel.
5/1988	“Guanidinium as a probe of gramicidin channels”. Laboratoire de Physicochimie des Systemes Polyphases. C.N.R.S. Montpellier, France.

9/1990 "Guanidinium as a probe of gramicidin channel structure". Department of Physiology, University of Illinois, Champaign, IL.

2/1992 "The voltage-gated K⁺ channel: a beta-barrel structure". Section of Physiology, Brown University, Providence, RI.

2/28/1992 "Modeling the pore of voltage-gated K⁺ channels". Department of Biophysical Sciences, SUNY, Buffalo, NY.

2/27/1992 "Molecular modeling of the voltage-gated K⁺ channel". Department of Physiology and Biophysics, University of Rochester, Rochester, NY.

3/26/1992 "The structure of voltage gated potassium channels". Physics Dept., Boston University, Boston, MA.

5/16/1992 "An SS1-SS2 beta barrel model for the voltage-gated K⁺ channel". Department of Physiology, Albert Einstein Medical School, Bronx, NY.

11/5/1992 "Molecular modeling of large biomolecules". Department of Chemistry, University of Massachusetts at Dartmouth, Dartmouth, MA.

3/19/1993 "Molecular modeling of voltage-gated potassium channels". Department of Chemistry, State University of New York at Binghamton, Binghamton, NY.

4/1993 "Molecular modeling of gramicidin and potassium channels". Department of Chemistry, University of Montreal at Montreal, Quebec, Canada.

5/1993 "Molecular modeling of the voltage-gated K⁺ channel". Pfizer Pharmaceutical Corporation, Groton, CT.

4/1994 "Gramicidin transport and dynamics with iminium ions." Friends of the Membrane. Department of Physiology. Cornell University Medical School, New York, NY.

2/1995 "Binding selectivity in Voltage-gated channels". Dept. Of Physiology, University of Utah Medical School, Salt Lake City, Utah.

2/1995 "Binding selectivity in Voltage-gated channels". Zoology Dept, Brigham Young University, Provo, Utah.

3/1996 "Organic Cation Permeability of the Gramicidin Channel". Theoretical Physics Group, BYU, Provo, Utah.

9/1996 "Organic Cation Permeability of the Gramicidin Channel". Zoology Dept., BYU, Provo, Utah.

10/1996 "Organic Cation Permeability of the Gramicidin Channel". Microbiology Dept., BYU, Provo, Utah.

11/18/98 "Lorentzian noise in single gramicidin A channel formamidinium currents." Novartis Symposium. London, UK.

6/98 "Formamidinium noise in gramicidin channels." Dept. of Physiology and Biophysics. Rush Medical School. Chicago, IL

9/15/99 "Proton permeation in gramicidin analogs: An assay of water reorientation rates." Satellite Symposium of XIII Int. Biophysics Congress. Center for Cellular & Molecular Biology. Hyderabad, India.

9/24/99 "The influence of polar side chains on channel conductance: Proton conductance in gramicidin." MBBG Seminar. University of Delhi, South Campus. New Delhi, India

1/13/00 "The biophysics of neuron behavior." Non-linear Networks Seminar. Mathematics Dept., BYU, Provo UT.

2/2/00 "Gramicidin, a model ion channel." NSF Program Directors Seminar. Arlington, VA.

2/8/00 "Using fluorination to explore the electric field in gramicidin channels." Dept. of Anatomy and Neurobiology. University of Utah, Salt Lake City, UT.

2/10/00 "Using fluorination to explore the electric field in gramicidin channels." Center for Neuroscience. Brigham Young University, Provo, UT.

4/23/01 "Determinants of channel permeability." Dept. of Physiology and Biophysics. Rush University Medical School. Chicago, IL

4/25/01 "Proton Exit, Not Water-Reorientation, is Rate Limiting for Proton Currents in Gramicidin Channels." Dept. of Physiology. Loyola University Medical Center. Chicago, IL.

5/4/01 "Issues in ion transport by protein channels." BYU Workshop on Electrolytes and Interfaces. Dept. of Chemistry. Brigham Young University. Provo, UT.

12/5/01 "Excitability begins here: Voltage-gated channels in nerve and muscle." Physics Dept. Colloquium. Brigham Young University, Provo, UT.

3/02 "Excitable channels in nerve and muscle." Dept. of Chemistry and Biochemistry, Brigham Young University, Provo, UT.

6/02 "The structure and function of voltage gated channels." Neuroscience REU Summer Seminar, Brigham Young University, Provo, UT.

7/02 "Channel behaviors of the M2 protein from Influenza A virus." Dept. of Chemistry, Florida State University, Tallahassee, FL.

11/03 "M2 Protein Function and Images in Planar Bilayers." M2 Workshop, Northwestern University, Evanston, Illinois.

1/04 "M2 Protein Function and Images in Planar Bilayers." PDBio Departmental Seminar, Brigham Young University, Provo, UT.

10/5/2004 "Selectivity of Ion Channels." Beckmann Institute Lab Meeting. University of Illinois at Champaign-Urbana. Urbana, IL.

12/17/05 "Tryptophan Fluorination Effects on Gramicidin Channel Conductance." Fluorine NMR Applications Symposium. Pacifichem 2005. Honolulu, HI.

3/15/06 "An Achilles Tendon in the Influenza Virus: M2." Department of Biology, Utah Valley State College, Orem, UT.

11/06 "Progress report on Influenza M2 channel behavior." Cross Lab Group. Dept. of Chemistry and Biochemistry. NHMFL. Florida State Univ. Tallahassee, FL.

10/16/07 "Molecular Modeling of Lipid Bilayers and Channel Forming Peptides." Richard Rowley Lab Group. Dept. of Chemical Engineering. Brigham Young University. Provo, UT.

10/25/07 "A Proposal for Radical Change in NIH Funding." NIH Peer Review Consultation Meeting. San Francisco, CA.

8/24/07 "Biophysical Measurements with Botulinum/A Toxin", Dartmouth Botulinum Toxin Symposium, Dartmouth, MA

3/10/08 "Single Channel Studies With Influenza A M2 (C19,50S) From E. Coli Inclusion Bodies." Influenza Research Group, Northwestern University, Evanston, IL.

4/22/11 "Influenza A M2 is a Drug Target." Toto Olivera Lab Meeting Seminar, Dept. of Biology, University of Utah, Salt Lake City, UT.

10/13/11 "Can we Stop Pandemic Flu with an Anti-viral Drug?" BYU Dept. of Physiology and Developmental Biology Seminar, Provo, UT

11/17/11 "Can we Stop Pandemic Flu with an Anti-viral Drug?" BYU Current Topics in Molecular Life Sciences Seminar Series, Provo, UT

- 9/18/2012 “Can we Stop Pandemic Flu with an Anti-viral Drug?” Dept. of Physics, Solid State Group Seminar Series, Provo, UT
- 5/15/2013 “Persistent *in vitro* inhibition of influenza A by amantadine analogs.” William DeGrado Research Group Meeting, San Francisco, CA
- 9/12/2013 “Persistent Blockers for Modern Influenza A.” Seminar, BYU Dept. of Physiology and Developmental Biology, Provo, UT
- 2/17/2014 “Influenza A Blockers with Reduced Resistance Formation.” Conference Platform Presentation, 58th Annual Meeting, Biophysical Society, San Francisco, CA
- 2/08/2015 “Molecular dynamics of amantadine block in M2 of influenza A: WT vs S31N.” Conference Platform Presentation, 59th Annual Meeting, Biophysical Society, Baltimore, MD. Lecture presented by student, Mitchell Glead.

International Symposium Lectures:

- 5/1988 “Guanidinium as a probe of the gramicidin channel interior”. Jerusalem Symposium on Quantum Chemistry and Biochemistry, Jerusalem, Israel.
- 11/18/98 “Lorentzian noise in single gramicidin A channel formamidinium currents.” Novartis Symposium. London, UK.
- 9/1999 “Proton permeation in gramicidin analogs: An assay of water reorientation rates.” Satellite Symposium of XIII International Biophysics Congress on Membranes, Sensors, and Cell Surfaces. Hyderabad, India.
- 12/13/05 “Fluorinated gramicidin channels: effects on the single channel conductance.” Symposium, Pacificchem 2005. Honolulu, Hawaii.
- 6/23/11 “Influenza A M2 is a Drug Target.” Ion Channel Workshop, Vancouver, BC, Canada.
- 6/26/2013 “Persistent *in vitro* inhibition of influenza A by amantadine analogs.” Ion Channel Retreat, Vancouver, BC

Teaching Experience:

- 1984-1991 Bio 110, Cell Physiology and Biophysics. Course director (1985).
- 1985-1989 Bio 117, Mammalian Physiology.
- 1992-1994 Bio 117, Mammalian Physiology. Course director (1993-1995).
- 1986-1994 Chem/Bio 121, Molecular Modeling. Course director (1986, 1988, 1990-1995).
- 1993-1995 Bio 80, Introduction to Physiology.
- 1995-present Zool 260, Physiol. & Dev. Biol. 220, Introduction to Human Anatomy
- 1997-1999 Zool 562, Neurophysiology
- 2000-2003 Neuro 105, Introduction to Neuroscience
- 2000-2003 Chem 489, Structural Biochemistry
- 2000-2002 Neuro 480, Advanced Neuroscience
- 2000-2001 Neuro 480, Neuroscience Lab
- 2003-present Zoo 460, Physiol. & Dev. Biol. 362, Human Physiology
- 2004-present Physiol. & Dev. Biol. 568, Electrophysiology and Cellular Biophysics
- 2005-present Physiol. & Dev. Biol. 550R, Molecular Dynamics Simulations Lab
- 2011-present Physiol. & Dev. Biol. 450R, Biophysics Research Training

Trainees:Postdoctoral Fellows:

9/1986-12/1988	Dr. Irina Vayl. Molecular definition of bilayer surface tension.
1/1991-1/1992	Dr. Andrea Dorigo. Electrostatic impact of Trp side chain in gramicidin channels, free energy profile of guanidinium transport in gramicidin channels.
9/1996-10/1997	Dr. Craig Thulin. Mechanism of Conductance increase by fluorination of Trp ¹³ in gramicidin A.
1/2002-1/2006	Dr. Viksita Vijayvergiya. Influenza M2 reconstitution and channel activity.

Ph.D. Recipients:

1992	Xian-Zheng Jin. Tau-16 gramicidin channel properties.
1993	Sang Ah Seoh. Organic cation selectivity in gramicidin channels.
1994	Steve Bogusz. Molecular modeling of voltage-gated channels.
1995	Yili Hao. Free energy profile for transport of small amines in gramicidin channels.
2002	Vivek Ramakrishnan. Cation flow selection in model calcium channels.
2008	Morad Alawneh. (with Doug Henderson) Molecular dynamics of M2 and gramicidin.
Current doctoral student: Kelly McGuire	

Master's Degree Recipients:

1989	Terry Bridal. The inactivation of gramicidin channels by local anesthetics.
1999	Chad Cole. Fluorination effects on gramicidin channel permeation.
2004	Travis Hughes. Atomic force imaging of influenza M2 proteins.
2005	Jacob Durrant. Estimation of the tryptophan potential in gramicidin channels.
2005	Mario Pinoli. Stability and permeability of the polyglutamine μ -helix in simulations.
2007	Brad Strongin. Thermodynamic evidence that ganglioside-mediated insertion of Botulinum A into the cholinergic nerve ending may precede endocytosis and acidification: a Langmuir film study.
2011	Emily Peterson. Proteoliposome Proton Flux Assays Establish Net Conductance, pH-Sensitivity, and Functional Integrity of a Novel Truncate of the M2 Ion "Channel" of Influenza A.
2013	Nathan A. Gordon. Divalent Copper Compounds as Inhibitory Agents of Influenza A.

Intramural Service:

Member BYU Internal Review Board 1999-2003
Member College Faculty Rank and Status Committee 2005-2010
Member Board of Directors, Magnetic Resonance Imaging Facility 2012-2014
Member, Departmental Faculty Rank and Status Committee 2009-2013
Chair, Departmental Faculty Rank and Status Committee 2013 - present

Extramural Service:

NIH Small Business Grant Reviewer 11/86, 6/87
NIH Physiology Study Section (ad hoc members) 2/88
National President, Masscomp User's Society 4/88-10/89
Organizer of the Gramicidin Club and its Banquet (-30 members), which met annually since 1987.
NSF Computers in Education Grant Reviewer 8/90
Reviewer: Biophysical Journal, Biophysica Biochimica Acta, Biochemistry, European
Biophysics Journal, Journal of Biological Chemistry.
NRC Howard Hughes Predoctoral Fellowship Panelist 2/95, 2/98, 2/00
NRC Associateship Program Panelist 2/96-2/99.
Spearheaded Invitation of Biophysical Society to meet in Salt Lake City in 2006.
Spearheaded Formation of Permeation/Transport Biophysics Subgroup in the Biophysical Society,
Feb. 2002; president of the group 2003-2006.
NIH Ad Hoc Reviewer 11/03
NSF Ad Hoc Reviewer 8/03
NIH Biophysics of Neural Systems Study Section (ad hoc member) 10/07

Professional Society Memberships:

Biophysical Society (1978 - present)
New York Academy of Sciences (1984-1992)
The American Association for the Advancement of Science (1985-1999)
American Chemical Society (1985-1993; 2005 – 2013)
The Society of General Physiologists (1986-1995)
Boston Channel Group (1986-1995)
The American Physiological Society (1987-1995)
The Protein Society (1987-1993)
Antiviral Society (2011 – present)
International Society for Antiviral Research (2012 – present)

CURRICULUM VITAE

Arthur O. Chapman

Sources:

<http://www.legacy.com/obituaries/deseretnews/obituary.aspx?n=arthur-owen-chapman&pid=829234>

UA 909; Faculty Biographical Files; University Archives; L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University.

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: 16 Mar 1913, Heber City, Utah

Death: 25 Feb 2003, Orem, Utah

Education:

BA, Brigham Young University, 1941

MA, University of Kansas, 1949

PhD, University of Nebraska, 1953

Employment:

Histological Technician in the Army's first Mobile Medical Laboratory, 1942-1945

Anatomy Instructor, University of Kansas, 1947-1949

Anatomy Instructor, University of Nebraska, 1949-1959

Faculty Member, Department of Zoology and Entomology and Department of Zoology, BYU, 1959-1983.

Teaching:

Histology

Histological Techniques

Neurology

Etiology and Pathology of Brain Injury

Advanced Histology

Elementary Human Anatomy

Nurses Physiology

Human Anatomy

Physiology

Vertebrate Embryology

Service:

Member Pre-professional Committee, 12 years

Chair Pre-Medical Committee

Chair Pre-Dental Committee

Publications:

Chapman AO. The estrous cycle in the Woodrat. *University of Kansas Science Bulletin* 34:267-283, 1951.

Chapman AO. The effects of varying dosage of radioactive phosphorus in the early chick embryo. *J. Morphology* 95:451-470, 1954.

Chapman AO and Latta JS. Teratogenic effects induced in chick embryo after preincubation injections of radioactive phosphorus. *Anatomical Record* 127:276, 1957.

Chapman AO. Delayed focal necrosis in rat brains produced by X-Ray. *Anatomical Record* 148:270, 1964.

Keith A. Crandall

CURRICULUM VITAE

Founding Director, Computational Biology Institute
The George Washington University
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45085 University Drive
Ashburn, VA 20147

Personal Information:

Telephone: 571-553-0107; Mobile: 202-769-8411
E-mail: kcrandall@gwu.edu

Education:

B.A. Kalamazoo College, Biology & Mathematics 1987
Honors Thesis: "The modeled effects of gametophytic self-incompatibility and localized gene dispersal on population substructure." Stephen Tonsor (Kellogg Biological Station, Michigan State University), advisor.

M.A. Washington University, Statistics 1993
Thesis: "Empirical tests of some predictions from the n-coalescent with applications to intraspecific phylogeny reconstruction." Stanley Sawyer, advisor.

Ph.D. Washington University, Population & Evolutionary Biology 1993
Dissertation: "Molecular systematics and evolutionary biology in the crayfish subgenus *Procericambarus* (Decapoda: Cambaridae)." Alan Templeton, advisor.

Alfred P. Sloan and National Science Foundation Postdoctoral Fellow, University of Texas, Molecular Evolution 1993-1996. Jim Bull & David Hillis, advisors.

Fellowships, Scholarships, Awards:

Washington University Graduate Fellowship	1988-1989
Ford Foundation Predoctoral Fellowship (declined)	1989
NSF Minority Graduate Fellowship	1989-1992
Marine Biological Laboratory Workshop Fellowship	1991
Mathematical Sciences Research Institute Workshop Fellowship	1992
Washington University Graduate Fellowship	1992
Alfred P. Sloan Postdoctoral Fellowship	1993
NSF Postdoctoral Fellowship	1993
NRSA Postdoctoral Fellowship (declined)	1993

American Society of Naturalists' Young Investigator Prize	1994
NSF US-Japan Molecular Evolution Workshop Fellowship	1995
Alfred P. Sloan Young Investigator Award	1996
James A. Shannon Award, NIH	1997
NSF CAREER Award	1997-2002
Brigham Young University Young Investigator Award	1999-2002
Burroughs Wellcome Fund Research Travel Award	2000
International Association of Astacology Sture Abrahamsson Lecturer	2000
Fulbright Scholar Oxford University	2000-2001
Faculty Development Award in Bioinformatics - PhRMAF	2001-2003
Thomas Martin Professorship, College of Biology and Agriculture, BYU	2001-2004
Department of Zoology, Distinguished Faculty Award, BYU	2001
Teaching & Learning with Technology Fellowship, BYU	2002
Batts Foundation Natural History Lecturer, Kalamazoo College	2003
John A. Widtsoe Fellow, BYU	2003-2004
Karl G. Maeser Research and Creative Arts Award, BYU	2004-2005
PhRMA Foundation Sabbatical Fellowship in Informatics	2005-2006
Eliza R. Snow Fellowship, BYU	2007-2009
President-Elect, Society of Systematic Biologists	2009
President, Society of Systematic Biologists	2010
ISI Highly Cited – Ecology/Environment	2010
Creative Works Award, Brigham Young University	2012
Honors Professor of the Year, Brigham Young University	2012
E. O. Wilson Naturalist Award, American Society of Naturalists	2012
International Association of Astacology, Distinguished Astacologist	2012
American Association for the Advancement of Science (AAAS) Fellow	2013
Faculty Member, Faculty of 1000 – Bioinformatics	2016

Professional Experience:

Research Assistant, Paul Olexia, Kalamazoo College	1985
Research Assistant, Stephen J. Tonsor, KBS, Michigan State University	1986
Research Assistant, Barbara Schaal, Washington University	1988
Research Assistant, Daniel Hartl, Washington University	1989
Research Assistant, Alan R. Templeton, Washington University	1989-93
Visiting Researcher, Horton H. Hobbs, Jr., Smithsonian Institution	1991-92
Postdoctoral Fellow, David Hillis/Jim Bull, University of Texas	1993-95
Assistant Professor, Department of Zoology, Brigham Young University	1996-2002
Associate Professor, Departments of Integrative Biology and Microbiology & Molecular Biology	2002-2005
Chief Administrative Officer, Chairman of the Board, Freedom Academy (K-8 Charter School, Provo, Utah)	2003-2005
Professor, Integrative Biology and Microbiology & Molecular Biology	2005-2006
Professor & Chair, Department of Integrative Biology	2006-2007
Professor & Chair, Department of Biology, Brigham Young University	2007-2012
Curator of Crustacea, Monte L. Bean Museum, Brigham Young University	1996-2012

Director, Computational Biology Institute, George Washington University	2012-present
Research Associate, Invertebrate Zoology, Smithsonian Institution	2012-present

Teaching Experience:

Invertebrate Biology	Conservation Biology	Genomics
Bioinformatics	Population Genetics	Molecular Evolution
Statistical Genetics	Computational Biology	Phylogenetics
Introductory Biology	Systematics	General Zoology

Professional Services:

President, Society of Systematic Biologists (2010)
 Editor (2010 – present): *PLoS Currents: Tree of Life*
 International Barcode of Life (2010 – present): US Node Chair
 Associate Editor (2015 – present): *Scientific Reports*
 Associate Editor (2015 – present): *Infection, Genetics, and Evolution*
 Associate Editor, Genome Evolution and Evolutionary Systems Biology section (2011 – present): *BMC Evolutionary Biology*
 Associate Editor (2002 - present): *Journal of Crustacean Biology*
 Associate Editor (2005 – present): *Evolutionary Bioinformatics*
 Editorial Board (2011 – 2014): *PLoS ONE*
 Editorial Board (2007-2014): *Bioinformatics*
 Associate Editor (2005-2007): *Evolution*
 Associate Editor (2005-2007): *Bioinformatics*
 Editorial Board (2010 – present): *Central European Journal of Biology*
 Editorial Board (2005 – present): *International Journal of Lakes and Rivers*
 Advisory Board (2007 – present): *Utah Valley University Biotechnology Program*
 Scientific Advisory Board (2005 – 2009): *Canadian Barcode of Life Network*
 Chair, Scientific Advisory Board (2007-2009): *Canadian Barcode of Life Network*
 Editor (2003 - 2006): *Animal Conservation*
 Associate Editor (1999 - 2004): *Systematic Biology*
 Associate Editor (1999 - 2003): *Molecular Biology and Evolution*
 Associate Editor (2001 - 2003): *Zootaxa*
 Editorial Board (2000 – 2002): *Animal Conservation*
 Council Member (2003-2006): Society of Systematic Biologists
 Executive Vice President (2004-2006): Society of Systematic Biologists
 The Science Board, The All Species Foundation (2003 – present)

Panel member “How to Succeed in iCorps” – NSF iCorps Washington DC node 22APR15
 Presenter, Governor’s Forum on Bio and Big Data/Analytics, Chantilly, VA 23APR15

Symposium Organizer: Society for the Study of Evolution, annual meeting, University of California, Berkeley. “Coalescent Theory and its Applications to Population Genetics and Phylogenetics.” 1992; Society for Molecular Biology and Evolution, University of Arizona, Tucson. “Molecular Evolution of Visual Pigments.” 1996.

Contributor: United Nations Environment Programme: Global Biodiversity Assessment, Section 2 - Characterization of Biodiversity.

Invited Participant: The Future of Genomics. 2001 National Human Genome Research Institute.

American Society of Naturalists' Young Investigator Award Committee 1996-97

Ernst Mayr Award Committee Chair – Society of Systematic Biologists 1998

Symposium Organizer: Society of Integrative and Comparative Biology, annual meeting, San Antonio, TX. “Advances in Decapod Phylogenetics”. 2008.

Participant, UNEP WCMC GBIF 2010 working group, Cambridge, United Kingdom 1-2APR2008.

Reviewer (91 different Journals averaging 20 ad hoc reviews per year):

Nature	Science	Bioinformatics	Gene	Genetics	Evolution
Ecology	Cladistics	PLoS Biology	Journal of Heredity	Conservation Biology	
Molecular Ecology		Systematic Biology	Molecular Biology and Evolution		
PLoS Computational Biology		Microbiology Ecology	Animal Conservation		
The Herpetological Journal		BMC Bioinformatics	Invertebrate Taxonomy		
Trends in Ecology and Evolution			The American Midland Naturalist		
Journal of Evolutionary Biology			Journal of Molecular Evolution		
Molecular Phylogenetics and Evolution			Biochemical Systematics and Ecology		
American Journal of Human Genetics			Comparative Biochemistry and Physiology		
The Biological Journal of the Linnean Society			FEMS Microbiology Ecology		
Proceedings of the Royal Society, London, B.		Acta Zoologica	Ecography		
Proceedings of the Biological Society of Washington			Biological Invasions		
Proceedings of the National Academy of Sciences, France			Journal of Virology		
Proceedings of the National Academy of Sciences, USA			The Southwestern Naturalist		
Journal of the American Medical Association		The Auk	Genome Biology		
Journal of Experimental Marine Biology and Ecology		Zootaxa	Ecology Letters		
Journal of Crustacean Biology		Nature Review Genetics	The Prairie Naturalist		
AIDS Research and Human Retroviruses		Conservation Genetics			
Journal of Insect Conservation		Biological Conservation	Freshwater Crayfish		
Developmental and Comparative Immunology		Genetica	Zoologica Scripta		
Marine Biology Research		Marine Biology	Ecological Research		
Marine Biotechnology		Invertebrate Systematics	The American Naturalist		
Journal of Zoological Systematics and Evolutionary Research			Nature Genetics		
Population Ecology		Aquatic Living Resources	Zoological Studies		
Ecological Research		Journal of Theoretical Biology	Diversity & Distributions		
American Institute of Biological Sciences		Journal of Biological Systems			
Gastroenterology	Heredity	PLoS Pathogens	Genome Research		
Aquatic Conservation: Marine and Freshwater Ecosystems			PLoS Genetics		

Geology	PLoS One	Journal of General Virology	Molecular Ecology Resources
Journal of Biogeography		Journal of Machine Learning Research	
Insect Molecular Biology		Journal of Clinical Microbiology	Contributions to Zoology
Nature Climate Change	Interface	BMC journals	Naturwissenschaften

Reviewer (18 Granting Agencies):

National Science Foundation	Australian Research Council
Smithsonian Institute	U.S. Seagrant
	NERC
National Science and Engineering Research Council	EPSCoR Idaho
	NSERC
Illinois-Indiana Sea Grant Program	National Geographic Society
	NIAID
The Israel Science Foundation	International Foundation for Science
EPSCoR Montana	FWF Der Wissenschaftsfonds (Austria)
Institute of International Education, Fulbright-Hays Program	
Science Foundation Ireland	Chilean Antarctic Institute
Royal Society of New Zealand	

NSF Review Panels (7 panels):

Postdoctoral Fellowships Panel	1997
Population Biology Panel	1997, 1999, 2001
Biotic Surveys and Inventories Panel	1998
Evolutionary Genetics	2006, 2010
Tree of Life	2006
Committee of Visitors – Emerging Frontiers	2006
Chair, National Evolutionary Synthesis Center Site Review Team	2008
SBIR	2013
ADBC	2014, 2015

NIH Review Panels (12 study sections):

NIH Centers of Biomedical Research Excellence (COBRE) review Panel	2001
NIAID - AIDS Research Review Committee ad hoc	2002
NIGMS Genetics Study Section (GEN) ad hoc	2003
NIAID - AIDS Research Review Committee ad hoc ZAI DP-A (M1)	2004
NIGMS Genetic Variation and Evolution Study Section	2006
NIGMS Genetic Variation and Evolution Study Section February	2007
NIGMS Genetic Variation and Evolution Study Section November	2007
NIGMS Genetic Variation and Evolution Study Section February	2008
NIGMS Genetic Variation and Evolution Study Section February	2009
NIGMS Genetic Variation and Evolution Study Section November	2011
NIGMS Genetic Variation and Evolution Study Section March	2012
NIAID – Clinical Trail Implementation Cooperative Agreement August	2012
NIGMS Genetic Variation and Evolution Study Section February	2015
NIH IMST K14 (Small Business Cell, Molecular, and Computational Biology)	2015
NIH ZRG1 F08 (Fellowships)	2015

Other Review Panels:

David H. Smith Research Fellowship Panel, The Nature Conservancy	2003
Fulbright National Screening Committee, United Kingdom/Spain 40 proposals	2004
Fulbright National Screening Committee, Science, Western Region	2007, 2010
Science Foundation Ireland, Dublin, Ireland	2009, 2010, 2011
Genome Canada Bioinformatics and Computational Biology	2013

Consultant:

VaxGen Inc. – AIDSVAX vaccine trials
Abbott Laboratories – drug resistance, HIV genetic variation
University of Nebraska – HIV mother/infant sequence analysis
Epimatrix – CTL prediction
Variagenics – Analysis of genetic variation
US Department of Interior – Genetics and Taxonomy and the Endangered Species Act
Global Solutions for Infectious Diseases – HIV vaccine design and database development
Cipher Systems - Bacterial Evolution
Genesis Genomics – various genomics projects
CosmosID – mobile genomic elements
Mitomics – mitochondrial evolution and disease diagnostics

Startup Companies

Genoma LLC 2002 – genomics consulting company
Aperiomics Inc 2013 – pathogen diagnostics company

Program Reviews

Genomic Science Program, North Carolina State University, February 2013
Institute of Bioinformatics, University of Georgia, February 2016

Faculty Rank Advancement Reviews:

Department of Biology, University of Rochester (2)
Division of Biology, Section of Ecology, Behavior, & Evolution, University of San Diego (2)
Department of Zoology, The Field Museum (2)
Department of Biology, San Diego State University (2)
Department of Ecology and Evolutionary Biology, Yale University (1)
Department of Genetics, Development, and Cell Biology, Iowa State University (1)
Department of Integrative Biology, University of California, Berkeley (1)
Genomics, Evolution, and Bioinformatics Group, School of Life Sciences, Arizona State University (1)
Federation Fellowship Program, University of Adelaide, Australia (1)
Department of Biology, University of Texas at Arlington (1)
Department of Biological Sciences, University of Idaho (1)
Department of Ecology & Evolution, University of California Los Angeles (1)
2008
Department of Biology and Biotechnology, Worcester Polytechnic Institute
Department of Biological Sciences, University of Alabama

Department of Biology, University of Vermont

2009

- Department of Integrative Biology, University of California, Berkeley
- Department of Natural Resources, Cornell University
- Department of Human Genetics, UCLA
- Department of Biology, San Diego State University
- Department of Biological Sciences, Simon Fraser University
- Department of Biology, George Washington University
- Department of Biology, Duke University

2010

- Department of Computer Science, Texas A&M

2011

- Department of Biology, The Pennsylvania State University

2012

- Department of Biology, The University of the West Indies
- Department of Botany and Zoology, University of Stellenbosch
- Department of Animal Sciences, University of Illinois

2013

- The Royal Society of New Zealand
- Natural History Museum of Los Angeles County
- Department of Biological Sciences, Ohio State University
- National Institute of Allergy and Infectious Disease, NIH
- Division of Biological Sciences, University of Montana

2014

- Institute of Arctic and Alpine Research, University of Colorado
- College of Biological Sciences, University of Guelph
- Department of Scientific Computing, Florida State University
- Field Museum of Natural History
- Department of Computer Science, New Mexico State University

2015

- Canadian Research Chair
- Department of Biology, University of Texas, Arlington
- Department of Medicine, University of British Columbia
- School of Life Sciences, The Chinese University of Hong Kong
- Institute for Genomics and Evolutionary Medicine, Temple University
- Department of Mathematical Sciences, New Mexico State University
- Center for Bioinformatics and Computational Biology, University of Maryland

Students:

David Posada, Ph.D. 2001 (now faculty at the University of Vigo)

James Fetzner, Ph.D. 2001 (now staff at the Carnegie Museum)

Megan Porter, Ph.D. 2005 (now faculty at the University of South Dakota)

Jennifer Buhay, Ph.D. 2006 (now staff at Selah Genomics)

Ashley Egan, Ph.D. 2006 (now curator at the Smithsonian Institution, National Museum of Natural History)

Nicole Lewis-Rogers, Ph.D. 2008 (now staff at University of Utah)
 Jesse Breinholt, Ph.D. 2012 (now postdoc at University of Florida)
 Eduardo Castro, Ph.D. 2014 (now Assistant Prof. Universidad Andrés Bello, Santiago, Chile)
 David Stern, Ph.D. anticipated 2017
 Matthew Bendall, Ph.D. anticipated 2019
 Bryan Nguyen, Ph.D. anticipated 2020
 Xin Huang, Ph.D. anticipated 2020
 Jimmy Bernot, Ph.D. anticipated 2020
 Nathan Jackson, M.S. 2004
 Dean Leavitt, M.S. 2006
 Marriane Morris, M.S. 2006
 Kit Menlove, M.S. 2010
 Matthew Bendall, M.S. 2012
 Chris Kelsey, Honors B.S. 1997
 Carolyn Kwok, Honors B.S. 1999
 Ryan Peterson, Honors B.S. 2004
 Heather Condie Shull, Honors B.S. 2004
 James Finlay, Honors B.S. 2005
 Daniel Standage, Honors B.S. 2010
 Benjamin Ainscough, Honors B.S. 2012
 Sarah Hilton, Honors, BS Biology & Statistics, 2015

Grants:

Kalamazoo College SIP Grant: “The modeled effects of gametophytic self-incompatibility and localized gene dispersal on population substructure.” \$500.00 1986.
 Missouri Department of Conservation: “An analysis of the conservation biology of the Missouri species of *Orconectes*, subgenus *Procericambarus* (Decapoda: Cambaridae).” \$1,312.50 1991-1993.
 National Science Foundation Doctoral Dissertation Improvement Grant: “An examination of the speciation process in *Orconectes*, subgenus *Procericambarus* (Decapoda: Cambaridae).” \$10,041.00 1991-1993.
 National Science Foundation, Supplement to the Doctoral Dissertation Improvement Grant: “On the phylogenetic relationship of the genera of Australian crayfishes” \$5000.00 1993-1994.
 Alfred P. Sloan Postdoctoral Fellowship in Molecular Studies of Evolution: “Loss of functional constraints: Implications for molecular evolution and phylogenetics.” \$80,500.00 1993-1996.
 National Science Foundation, Postdoctoral Research Fellowship: “Loss of functional constraints: Implications for molecular evolution and phylogenetics.” \$34,800.00 1994
 National Science Foundation, co-PI with David Hillis: "Molecular and Morphological Systematics of the Australian Genera of Freshwater Crayfish (Decapod: Parastacidae)." \$13,500.00 1995-1996.
 Alfred P. Sloan Young Investigator Award in Molecular Studies of Evolution: “Recombination in molecular phylogenetics.” \$100,000.00 1996-1999.
 National Institutes of Health, National Institute of Child Health and Human Development:

“HIV-1 sequence diversity associated with pediatric AIDS” \$1,507,030 1997-2001.
 Co-PI with Raphael Viscidi, Johns Hopkins University.
 National Science Foundation: “Crayfish Molecular Systematics and the Evolution of
 Habitat Specificity.” \$400,000.00 1997-2001.
 National Institutes of Health, James A. Shannon Director’s Award: “Phylogeny
 reconstruction with recombination”. \$100,000 1997-1999.
 National Geographic Society: “The Origin(s) of Freshwater Crayfish”. \$19,692 1998-2000.
 National Science Foundation Research Experience for Undergraduate Supplement. \$5000
 1998.
 Brigham Young University, Sequencing Facility Enhancement. \$45,000 1998.
 National Institutes of Health, Minority Undergraduate Research Experience Supplement.
 \$7000 1998.
 Utah Division of Wildlife Resources, Black Bear Population Genetics with Hal Black,
 \$20,000 1998.
 Utah Division of Wildlife Resources, Cougar Population Genetics, subcontract with Utah
 State University (Mike Wolf), \$6,670 1998.
 National Science Foundation Research Experience for Undergraduate Supplement. \$10,000
 1999.
 Brigham Young University, Monte L. Bean Database Project, \$18,000 1999 (with other
 curators).
 National Science Foundation, DEB-0075600 Doctoral Dissertation Improvement Award
 with James Fetzner (graduate student) \$10,000 2000-2002.
 National Science Foundation, DEB-0073154 Doctoral Dissertation Improvement Award
 “Dissertation Research: The Detection of Recombination from DNA Sequences and its
 Impact in Phylogeny Reconstruction” with David Posada (graduate student) \$3,600
 2000-2002.
 Burroughs-Wellcome Trust Research Travel Grant \$13,000 2000 - 2001.
 The Fulbright Commission Research Scholar Award £5,000 2000 - 2001,
 National Geographic Society, "Conservation biology of Australia's most endangered
 marsupial" with Elizabeth Sinclair (postdoc) and Tony Friend (Department of
 Conservation and Land Management, Western Australia) \$7,400 2000.
 Brigham Young University, "Phylogenetic Analysis: A collaborative approach" with Quinn
 Snell, Mark Clement, Michael Whiting, David Whiting, Gilbert Fellingham, and Greg
 Burton \$150,000 2000-2003.
 National Science Foundation, DEB-0075600 "Phylogenetics and biogeography of
 Aeglidae" \$180,000 2000-2003.
 National Science Foundation, IOB-0124162 Research Experience for Undergraduate
 Supplement to “Molecular systematics and the evolution of habitat specificity”. \$5000
 2000.
 Pharmaceutical Research and Manufacturers of America Foundation, Faculty Development
 Award in Bioinformatics. \$60,000 2001-2003
 Brigham Young University, “Environments for Undergraduate Mentoring” with Jack Sites
 and Leigh Johnson \$18,000 2001.
 National Science Foundation, DEB-0114696 REU Supplement, "Phylogenetics and
 Biogeography of Aeglidae" \$10,000 2001.
 National Science Foundation, DEB-0120718 "BIOCOMPLEXITY: hexapod phylogenetics

- bringing phylogenetic supercomputing to the masses" with Michael Whiting, Mark Clement, Quinn Snell, and David Whiting \$1,340,000 2002 - 2006.

United States Forest Service, "*Oreohelix* genetics study", \$10,000 2001 - 2003.

Chicago Zoological Society, "Conservation Genetics of *Astacopsis gouldii* - the Tasmanian Giant Lobster." \$2,500 2001-2002.

Brigham Young University Environments for Mentoring Grant \$25,000 2002.

National Institutes of Health, "Molecular Epidemiology of *N. gonorrhoeae*" R01-AI50217-01A1, with Raphael Viscidi and Jonathan Zenilman, \$2,678,220. 2002-2007.

National Science Foundation, DEB-0218279 REU Supplement, "Phylogenetics and Biogeography of Aeglidae" \$13,500 2002.

National Science Foundation - RET Supplement, "Phylogenetics and Biogeography of Aeglidae" \$10,000 2002.

United States Forest Service, "*Oreohelix* genetics study", \$10,000 2002 - 2004.

National Science Foundation, DEB-0206537, Doctoral Dissertation Improvement Award with Megan Porter (graduate student) \$9,800 2002-2004.

National Science Foundation - REU Supplement to "BIOCOMPLEXITY: hexapod phylogenetics - bringing phylogenetic supercomputing to the masses" with Michael Whiting, Mark Clement, Quinn Snell, and David Whiting \$12,000 2002.

National Institutes of Health, "Phylogeny and Recombination" R01-GM66276-01, \$525,600. 2002-2006.

National Science Foundation, DEB-0213905 "Marker Analysis of Dog Breeds to Identify Genes of Large Phenotypic Effect" \$50,000 2002 - 2003.

National Science Foundation, DEB-0236135 "Systematics and Evolution of Barnacles" \$350,050 2003-2006.

American Foundation for AIDS Research (AmFAR), "Genotype of follicular dendritic cell-HIV reservoir", with Gregory Burton and Suzanne Gartner \$90,000 1JAN03-31DEC03.

National Science Foundation - REU Supplement, "Phylogenetics and Biogeography of Aeglidae" \$6,000 2003.

National Science Foundation - REU Supplement, " Systematics and Evolution of Barnacles" \$6,000 2003.

Brigham Young University Environments for Mentoring Grant \$20,000 2003.

National Institutes of Health, "Tissue and Cell Reservoirs for HIV", 1 R01 AI057007-01, Suzanne Gartner PI, \$2,532,773 7/01/03 – 7/01/08.

John A. Widtsoe Fellowship, Brigham Young University, \$26,000 2003-2005.

National Parks Service, Timpanogos Cave National Monument, "Microbiological survey of Timpanogos Cave National Monument" 2003-2004 \$11,166

Arkansas Game & Fish Commission, "Status and Genetics of *Procambarus ferrugineus*" \$7,000 2003-2004

Brigham Young University Environments for Mentoring Grant \$20,000 2004.

National Science Foundation, RET (Research Experience for Teachers) Supplement to "Systematics and Evolution of Barnacles". Jun04-Aug04, \$20,000

National Science Foundation, RET (Research Experience for Teachers) Supplement to "BIOCOMPLEXITY: hexapod phylogenetics - bringing phylogenetic supercomputing to the masses". Jun04-Aug04, \$20,000

Australian Research Council, "Evolutionary, macroecological and phylogenetic patterns in

Australasian freshwater crayfish". With Alastair Richardson, Chris Austin, and Pierre Horwitz. Jan 05 – Jan 09, \$230,000

Ministerio de Ciencia y Tecnología (BFU2004-02700)." Caracterización de la recombinación en secuencias de ADN y su importancia en el virus de la inmunodeficiencia humana tipo 1 (VIH-1)". PI: David Posada, Keith Crandall, Darren Martin. Amount: €23.700 ; Jan 2005 – Jan 2008

Arkansas Game & Fish Commission, "Status and Genetics of *Procambarus* species" \$8,000 2005

National Science Foundation - REU Supplement, " Systematics and Evolution of Barnacles" \$12,000 2005.

National Science Foundation – DEB- 0120718, REU Supplement to "BIOCOMPLEXITY: hexapod phylogenetics - bringing phylogenetic supercomputing to the masses" with Michael Whiting, Mark Clement, Quinn Snell, and David Whiting \$12,000 2005.

Brigham Young University Environments for Mentoring Grant, "Crustacean Systematics", \$15,000 2005.

National Science Foundation - RET Supplement, " Systematics and Evolution of Barnacles" \$20,000 2005.

Brigham Young University, Roger and Victoria Sant endowment, "Conservation Status and Genetics of Ouachita Mountain Crayfish of the Genus *Procambarus*". \$9020 2005.

Pharmaceutical Research Manufacturers of America Foundation, "Sabbatical Award in Informatics", \$40,000 2005-2006.

Allan Wilson Centre for Molecular Ecology and Evolution, Sabbatical Leave Award, \$15,000 NZ, 2005-2006.

National Science Foundation, DBI-0520978 MRI: Acquisition of DNA-manipulation robotics for increased throughput and data integrity in biological research, teaching, and student research training". With Leigh Johnson (PI), Laura Bridgewater, Greg Burton, and Michael Whiting \$337,502, 8/05 – 8/08.

National Science Foundation, EF-0531762 "Collaborative Research: AToL: Morphological and Molecular Phylogeny of the Decapod Crustaceans." With Jody Martin, Darryl Felder, Nikki Hanegan, Carrie Schweitzer, and Rodney Feldman. \$2,800,967 9/05-9/10.

National Science Foundation, OISE-0530267 "Speciation in Patagonia: Establishing Sustainable International Collaborations in Evolution, Ecology, and Conservation Biology." With Jerry Johnson (PI), Leigh Johnson, Guillermo Ortí, and Jack Sites. \$2,144,591 9/05-9/10.

National Science Foundation, DEB-0508580 Doctoral Dissertation Improvement Grant. "DISSERTATION RESEARCH: Evolutionary History and Contemporary Gene Flow of Cave Crayfishes" with (graduate student) Jennifer Buhay. \$10,220 15JUN05-31MAY07.

US-Israel Binational Science Foundation, No 2004239, "Speciation and Phylogeny in Chthamalus Genus, Molecular and Morphological Analysis" with John Wares and Yair Achituv. \$192,000 Oct05 – Oct 09.

Arkansas Game & Fish Commission, "Status of *Procambaru regalis*, *Fallicambarus petilicarpus*, and *Faxonella blairi*". \$15,000 with Henry Robison, 1MAR06-01JAN07.

Eliza R. Snow Fellowship, Brigham Young University, \$33,000 Sep07-Sep10.

National Science Foundation, DEB-0721146, "SYMPOSIUM: Advances in Decapod

Crustacean Phylogenetics.” Co-PI with Joel W. Martin and Darryl L. Felder. \$40,000 Aug07 – Jul08.

USDA, 2007-01737, Foot-and-Mouth Disease Virus Phylogeny and Genetic Characterization: In-depth Analysis of a Picornavirus Animal Pathogen. \$145,024. 1SEP07-31AUG09.

Arkansas Fish & Game Commission. “Status, Distribution, and Genetics of Three Arkansas Crayfish: *Cambarus causeyi*, *Procambarus parasimulans*, and *Orconectes meeki brevis*” \$30,000 with Henry Robison. 01SEP07-01SEP09.

Florida Fish & Wildlife Commission, “Florida Cave Crayfish Genetics” \$13,000 06/01/08-06/01/10.

National Science Foundation, DBI-0821728 “MRI: Acquisition of Genome Sequencer FLX system” \$630,000 with Josh Udall, Jeff Maughan, Michael Whiting, Chin-Yo Lin, David Erickson, Alan Harker, Ed Wilcox, Byron Adams, Nikki Hanegan, and Mark Clement. 01JUL08-01JUL13.

National Parks Service, J8R070800017 “Assess genetic distinctiveness of *Cambarus acuminatus* - a recently discovered crayfish in Valley Creek within Valley Forge National Historical Park” \$53,244 9/01/08 – 5/30/11.

National Research Foundation, South Africa “Freshwater crab phylogeography in Africa” – R 800,000 ~US\$90,000 2009-2011.

National Science Foundation, REU Supplement \$12,000 2009.

Brigham Young University, Mentoring Environment Grant, \$20,000 2010.

National Science Foundation, IOS-1045243, "EAGER-Collaborative Research: Developing Genomic Tools for Integrative Biology Research." \$300,000 1SEP2010 - 31AUG2012

National Science Foundation, IOS-1045243, REU Supplement \$6000 2011.

Brigham Young University, Mentoring Environment Grant, \$20,000 2011.

BP Gulf of Mexico Research Initiative, “The Effects of the Macondo Oil Spill on Coastal Ecosystems”, \$158,334 Sep2011-Sep2014.

National Science Foundation, EF-1208728, “Collaborative Research: Automated and community-driven synthesis of the tree of life”, \$350,000 (\$5,760,000 total with Cranston, Smith, Williams, Holder, Burleigh, Hibbett, Ree, Katz, and Gude as coPIs) May2012 – May2016.

NIH NCATS – UL1TR000075-4, “Clinical and translational science institute at Children’s National.” Guay-Goodford PI. \$80,000 01APR2013 – 31MAR2016.

George Washington University, “Evaluating Foodborne Origins for Pediatric Urinary Tract Infections”, \$36,000, 01JAN13 – 31DEC13.

National Science Foundation, IIP-1334101, “I-Corps: Next-Gen Diagnostics”, \$50,000 15APR13 – 30SEP13.

i6Virginia Innovation Partnership, US Department of Commerce, “NextGen Diagnostics”, \$30,000 01FEB2014 – 30SEP2015.

National Science Foundation, IIP-1415670. “SBIR Phase I: Rapid pathogen diagnostics and biosurveillance using multiplexed high-throughput sequencing.” \$150,000 01JUL2014 – 31DEC2014.

NIH, NIAID R01 AI076059. “Elimination of HIV using HERV specific T cells”. Doug Nixon PI. \$111,176 01SEP14 – 31AUG16.

NIH, NIAID “Washington Metropolitan Women's Interagency HIV Study”, Amanda

Castle, PI. \$855,000 01SEP14 – 31DEC16.
Stanley Medical Research Institute. “Metagenomics of Human Diseases”, Keith Crandall, PI. \$80,000 09/01/14 – 08/31/16.
The International Rhino Foundation, “Role of gut microbiota in health and disease sensitivity of the black rhinoceros.”, Keith Crandall PI, \$80,000, 04/15 – 04/17.
NIH, NIAID U01AI034994-22 “Washington Metropolitan Women's Interagency HIV Study”, Seble Kassaye, PI \$852,304 01JAN2015 – 31DEC15.
National Science Foundation, DEB-1541554 Collaborative Research: FishLife: genealogy and traits of living and fossil vertebrates that never left the water. Guillermo Orti, PI. Crandall CoPI \$585,618
National Science Foundation, DEB-1601131 “Phylogenetic analysis of vision loss and gene expression in cave and surface adapted crayfish”, Keith Crandall, PI \$19,730 DDIG with David Stern.
NIH, NCI R01 CA206488-01 HIV induced anti-cancer HERV immunity in prostate, breast and colon cancers. Doug Nixon PI, \$3,036,029 Crandall co-Investigator.
NIH, NCATS U54 TR001359-01A1 Clinical and Translational Science Institute at Children’s National. Lisa Guay-Woodford, PI. \$23,976,342. Crandall Director of Informatics.

Grant Total: \$48,324,456

Invited Lectures:

Meetings

Society for the Study of Evolution, annual meeting, University of California, Berkeley, California. 1992.
Southern Symposium on Molecular Evolution, LaTrobe University, Melbourne, Australia. 1993.
International Symposium: Models in Phylogeny Reconstruction, Natural History Museum, London, England. 1993.
International Senckenberg Symposium on Crustacea Decapoda, Forschungsinstitut Senckenberg, Frankfurt, Germany. 1993.
International Association of Astacology biannual meetings, Adelaide, Australia. 1994.
Young Investigators Symposium, American Society of Naturalists' annual meeting, University of Georgia, Athens, Georgia. 1994.
DIMACS Workshop on Phylogeny Reconstruction, Princeton University, Princeton, NJ. 1995.
International Conference on HIV Sequence Analysis, Rutgers University, Piscataway, NJ. 1995.
Workshop in Recombination in HIV, Los Alamos National Lab, NM. 1995.
Society for Molecular Biology and Evolution annual meeting, Tucson AZ, 1996.
Society for the Study of Evolution annual meeting, Washington University, St. Louis, MO 1996
Setting Conservation Priorities, LaTrobe University, Melbourne, Australia 1996.
International Association for Astacology biannual meeting, Ontario, Canada, 1996.
The International Biometric Society Eastern North American Region annual meeting,

Memphis, TN, 1997.
 American Mathematical Society workshop on Statistics in Molecular Biology, Seattle, WA 1997.
 American Society of Ichthyologists and Herpetologists annual meeting, Nuclear DNA Symposium, Seattle, WA 1997.
 Willi Hennig Society Annual Meeting, Brazil, 1998.
 HIV Sequence Analysis Meeting, Santa Fe, NM 1998.
 The Crustacean Society annual meeting, Lafayette, LA 1999
 International Association of Astacology, Sture Abrahamsson Memorial Lecture, Perth, Australia 2000.
 XIV Seminario de Genética de Poblaciones y Evolución, Gandía, Spain 2002
 Phylogeny and Conservation, Zoological Society of London, London, UK 2003
 DNA & Taxonomy, Banbury Center, Cold Spring Harbor, NY 2003
 American Mycological Society and the British Mycological Society annual meeting, Asilomar, CA 2003
 European Society for Evolutionary Biology IX International Congress, Leeds, UK 2003
 American Genetics Association, 1st International Congress on Conservation Genetics, Front Royal, VA 2003
 CrayNet, Final European Union Meeting on Freshwater Crayfish, Florence Italy, 2005
 Evolution of Infectious Diseases, National Institute of General Medical Sciences, Bethesda, MD 2005.
 Royal Belgian Institute of Natural Sciences and The Belgium Science Policy workshop on Aquatic Biodiversity, Brussels, Belgium 2005.
 Barcoding of Marine Life Meeting, The Netherlands Royal Academy of Arts & Science, Amsterdam, May 2006
 Society for the Study of Evolution Annual Meeting, Species Delimitations Symposium, SUNY at Stony Brook, NY June 2006
 North American Benthological Society Annual Meeting, Applications of Genetics in Freshwater Ecology Symposium, Anchorage, AK June 2006
 DIMACS Workshop on Phylogenetic Trees and Rapidly Evolving Diseases, Rutgers, NJ June 2006
 National Science Teachers Association Regional Meeting, Featured Panelist – Evolution and Education, Salt Lake City, UT December 2006.
 International Association of Astacology 17, University of Kuopio, Finland, 2008
 Advances in Crustacean Phylogenetics, Rostock, Germany, 2008
 Southern Connections Congress, Beriloche, Argentina 2010
 Seventh International Crustacean Congress, Qingdao, China 2010
 International Tropical Biology and Conservation annual meeting, Bali, Indonesia, 2010
 Reunion Alejandro Villalobos, Cozumel, Mexico, 2010
 Texas Community College Teachers Association, San Antonio, TX 2011
 Michigan Community College Biologists, Grand Rapids, MI 2011
 Society of Systematic Biologists, Presidential Address, Norman, OK 2011
 Ocean Sciences Meeting, Salt Lake City, UT 2012
 Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases, New Orleans, LA 2012
 Society for Integrative and Comparative Biology, San Francisco, Jan 2013

Global Invertebrate Genome Alliance, Florida, March 2013
 Synthetic Biology and Conservation, University of Cambridge, Wildlife Conservation Society, April 2013
 Phylogeny, Conservation, and Extinction, The Royal Society, London, March 2014
 9th International Genomics Conference, Shenzhen, China September 2014
 American Mathematical Society, Spring Sectional Meeting, Georgetown University, March 2015
 AquaRES Workshop on Freshwater Biodiversity, Brussels, Belgium, September 2015
 Keynote Speaker, First National Congress of Native Fauna in Anthropogenic Environments, Queretaro, Mexico October 2015
 Southern Connections Congress, Punta Arenas, Chile, special symposium speaker, January 2016.

Universities

University of Missouri - St. Louis, St. Louis, Missouri. 1993.
 Brigham Young University, Provo, Utah. 1994.
 University of Virginia, Charlottesville, VA. 1995.
 Harvard University, Cambridge, MA. 1995.
 University of Michigan, Ann Arbor, MI 1996.
 University of British Columbia, Department of Zoology, B.C., Canada, 1997.
 Simon Fraser University, Department of Biology, B.C., Canada, 1997.
 University of Utah, Department of Biology, Salt Lake City, UT, 1997.
 San Francisco State University, San Francisco, CA 1998
 Department of Statistics, Brigham Young University, Provo, UT 1998
 Department of Biology, University of California, Northridge, CA 1999
 Department of Biological Sciences, University of Nebraska Fall 1999
 Department of Biology, University of Vermont, Fall 1999
 Department of Ecology and Evolution, SUNY at Stony Brook, 2001
 Department of Biology, University of Oregon, 2001
 Department of Biology, Utah State University, 2001
 Department of Ecology, Evolution and Behavior, University of Minnesota, 2001
 Gordon Research Conference, Microbial Population Biology, Williams College, MA 2001
 Society for Conservation Biology annual meeting, Hilo Hawaii 2001
 Departments of Computer Science, Biology, and Mathematics, University of Idaho 2001
 Department of Biological Sciences, Dartmouth College 2002
 Department of Biology, University of Oregon 2002
 The Genome Center, University of Wisconsin 2002
 Department of Medical Informatics, University of Utah 2002
 Department of Biology, Colorado State University 2002
 Complex Biological Systems Seminar, Montana State University, 2003
 Kalamazoo College, Department of Biology, Kalamazoo, MI 2003
 University of Colorado, Department of Biology, Boulder, CO 2003
 Notre Dame University, Department of Biology, South Bend, IN 2003
 University of California – Los Angeles, Department of Evolutionary Biology 2004
 University of Alabama, Howard Hughes Lecturer, Department of Biology 2004
 San Diego State University, Department of Biology, San Diego, CA 2005

University of Virginia, Department of Biology, Charlottesville, VA 2005
 University of Auckland, School of Biological Sciences, Auckland, New Zealand 2005
 Griffith University, Brisbane, Australia 2005
 Utah Valley State College, Department of Biological Sciences, Orem, UT 2007
 Department of Statistics, Brigham Young University, Provo, UT 2007
 Human Genetics Center, Health Science Center at Houston, School of Public Health, The
 University of Texas, Houston, TX 7JAN08
 Massey University, Palmerston North, New Zealand, May 2008
 Victoria University, Wellington, New Zealand, September 2008
 Purdue University, Department of Biological Sciences 2009
 Biomolecular Engineering, University of California Santa Cruz 2009
 Museum of the North, University of Alaska, April 2009
 Darwin University, Darwin Australia, Keynote Speaker for Darwin Celebration 2009
 Washington University, Department of Biology 2010
 Pennsylvania State University, Center for Infectious Disease Dynamics 2010
 University of Wyoming, Department of Molecular Biology 2010
 University of Utah, Department of Biology 2010
 University of Utah, Department of Medical Informatics 2011
 George Washington University, Department of Biology 2011
 Duke University, Computational Biology & Bioinformatics Program 2012
 University of Maryland, Department of Biological Sciences, 2012
 University of Southern California/Natural History Museum/Keck Medical School,
 February 2013
 The Chinese University of Hong Kong, September 2014
 South University of Science and Technology of China, September 2014
 University of Georgia, Department of Genetics, October 2014
 Dalhousie University, Department of Biology, October 2014
 James Madison University, Department of Biology, March 2015
 Universidad Andres Bello, Santiago Chile April 2015
 Department of Biomedical Sciences, University of Maryland, November 2015
 Department of Biology, University of Tulsa, March 2016
 Department of Biology, Florida International University, April 2016

Private Research Companies/Foundations/Organizations

Los Alamos National Laboratory, Los Alamos, New Mexico. 1994.
 Field Museum of Natural History, Chicago, Illinois. 1994.
 Center for Disease Control, Atlanta, GA. 1995.
 National Cancer Institute, Fredrick Maryland 1997.
 National Institutes of Health, Bethesda, MD, 1998.
 Isaac Newton Institute for the Mathematical Sciences, Cambridge, UK 1998
 Center for Disease Control and Prevention, Atlanta, GA 1999
 VaxGen Inc. 2000
 Utah Division of Wildlife Resources, 2001
 National Human Genome Research Institute, Airlie, Virginia 2001
 Abbott Laboratories, Chicago, IL 2002
 Samuel Roberts Nobel Foundation, Virus Evolution Workshop, Ardmore, OK 2002

U.S. Fish & Wildlife, Department of Interior Workshop on Applied Conservation Genetics, Shepherdstown, VA 2002.
 US-Arab Economic Forum, Detroit, MI 2003
 National Science Foundation, Assembling the Tree of Life Workshop, Arlington, VA 2004
 US Department of the Interior, Workshop on Genetics and Taxonomy and the Endangered Species Act, Crystal City, VA 2005
 Marine Barcode of Life, Keynote Address, Woods Hole, MA 2009
 Children's National Medical Center, Washington DC 2012
 National Evolutionary Synthesis Center (NESCENT) Director's Lecture 2012
 Food and Drug Administration, Microbial Pathogens Group 2013
 Food and Drug Administration, February 2, 2015
 NIH – NCBI February 26, 2015

Publications:

Books:

Crandall, K.A. 1999. *The Evolution of HIV* Johns Hopkins University Press, Baltimore, MD.
 Crandall, K.A., and J. Lagergren. 2008. *Algorithms in Bioinformatics* Springer-Verlag, Berlin, Germany. <http://www.springer.com/computer/foundations/book/978-3-540-87360-0>
 Martin, J.W., K.A. Crandall, and D.L. Felder. 2009. *Decapod Crustacean Phylogenetics*, Crustacean Issues 18, Taylor-Francis/CRC Publishers, Cold Spring Harbor, NY.

Book Reviews:

Crandall, K. A. and K. L. Shaw, 1993. The Comparative Method in Evolutionary Biology by P.H. Harvey and M.D. Pagel, **Bulletin Of Mathematical Biology** 55(3): 685-689.
 Crandall, K. A. 1995. Molecular Markers, Natural History and Evolution by John C. Avise, **Systematic Biology** 44(1): 117-120.

Book Chapters:

Crandall, K. A., A. R. Templeton, and C. F. Sing. 1994. Intraspecific cladogram estimation: Problems and solutions. Pp. 273-297 In: **Models in Phylogeny Reconstruction** (R.W. Scotland, D. J. Siebert, and D. M. Williams, eds.). Systematics Association Special Volume, Clarendon Press, Oxford, England.
 Thorpe, J.P., J. Smartt, A. L. Allcock, M. Chauvet, K. A. Crandall, D. R. Given, S.J.G. Hall, J.M. Iriondo, T.M. Lewinsohn, S.M. Lynch, G.M. Mace, A.M. Sole-Cava, E. Stackebrandt, A.R. Templeton, and P.C. Watts. 1995. "Genetic diversity as a component of biodiversity." Pp. 57-87. In: **Global Biodiversity Assessment**, V.H. Heywood and R. T. Watson, eds. Cambridge University Press, Cambridge.
 Crandall, K. A. 1995. "Intraspecific cladogram estimation." Pp. 19-22. In: **Proceedings of Phylogeny Workshop**, Technical Report 95-48, S. Tavaré, ed. DIMACS, New Jersey.
 Crandall, K. A. 1996. "Identifying links between genotype and phenotype using marker loci and candidate genes." Pp. 137-157. In: **The Impact of Plant Molecular Genetics**, B. W. S. Sobral, ed. Birkhäuser, Boston.

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- Brienholt, J., M. Pérez-Losada, and K.A. Crandall. 2009. The timing of the diversification of freshwater crayfish. Pp. 343-356 in **Decapod Phylogenetics** eds. J.W. Martin, K. A. Crandall, and D.L. Felder. CRC Press, Cold Spring Harbor, NY.
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Journal Articles:

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Total Publications: 256

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Brigham Young University	1995	Microbiology	B.S.

Professional Positions:

<i>Employer</i>	<i>Dates</i>	<i>Position</i>
Brigham Young University	1987 - present	Assistant Professor
USDA-ARS, Purdue University	1986-1987	Research Geneticist
Purdue University	1983-1986	Research Associate

Professional Organizations

2004-present	International Society of Biogeography
1990-present	American Fisheries Society
1989-present	Desert Fishes Council
1991-present	American Association for the Advancement of Science

Peer Reviewed Publications

Muhlestein, K., R. P Evans. *Submitted*. Death of a Child: Demographic and preparation trends of child burials in the Graeco-Roman Fayoum. Routledge Handbook on *Children in Antiquity*.

Amin, O., R. P. Evans, R. Heckmann, O. Bangou. *Submitted*. Morphological and molecular description of *Tenuisentis niloticus* (Acanthocephala: Tenuisentidae) from Arowana, *Heterotis niloticus*, in Burkina Faso, with emendation of the family diagnosis and notes on new features, cryptic genetic diversity and histopathology. *Systematic Parasitology*.

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2011 Impact Factor not available

- [18] Billman, E. J., J. B. Lee, D. O. Young, D. McKell, R. P. Evans, and D. K. Shiozawa. 2010. Phylogenetic divergence in a desert fish: differentiation of speckled dace within the Bonneville, Lahontan, and Upper Snake River basins. *Western North American Naturalist* 70:100-108.

2010 Impact Factor 0.41

- [17] Stutz, H. L., D. K. Shiozawa, and R. P. Evans. 2010. Inferring dispersal of aquatic invertebrates from genetic variation: a comparative study of an amphipod and mayfly in Great Basin springs. *Journal of the North American Benthological Society* 29:1132-1147.

2010 Impact Factor 2.974

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2006 Impact Factor 4.825

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2004 Impact Factor 1.792

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- [12] C.F. Ruas, D.J. Fairbanks, R.P. Evans, H.C. Stutz, W.R. Andersen, and P.M. Ruas. 1998. Male-specific DNA in the dioecious species *Atriplex garrettii* (Chenopodiaceae). *American Journal of Botany* 85:162-167.
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Scholarly Presentations

Total 143

- Houston, D. D., R. P. Evans, D. K. Shiozawa. 2015. Cutthroat Trout Subspecies Delineation Using Diagnostic Single Nucleotide Polymorphisms. Annual Meeting, American Fisheries Society, August 2015. Portland, Oregon.
- Oh, S., D. K. Shiozawa, P. Ridge, B. Pickett, R. P. Evans. 2015. Phylogeography of Cottids in the Lost River Streams of Idaho. Annual Meeting, American Fisheries Society, August 2015. Portland, Oregon.
- Shiozawa, D. K., P. Ridge, D. Houston, P. Unmack, R. P. Evans. 2015. Refining Phylogenetic Relationships Among Cutthroat Trout. Annual Meeting, American Fisheries Society, August 2015. Portland, Oregon.
- Evans, R. P., D. K. Shiozawa. 2015. Greenback Cutthroat Trout in Utah. 2015. LaSal Restoration Team. August 2015. Green River, Utah.
- Evans, R. P., K. Muhlestein. 2015. Death of a Child: the Demographic and Preparation Trends of Child Burials in the Graeco-Roman Fayoum of Egypt. Children In Antiquity, August 2015. Sydney, Australia.
- Evans, R. P. 2015. Excavating Mummies and Uncovering Christian Burial Traditions. Institute of Coptic Studies Research Program, May 2015. Cairo, Egypt.
- Evans, R. P. 2015. A cemetery in transition: Changes in burial orientation, goods, textiles and the inclusion of children at Fag el-Gamous after 200 AD. The Second International Conference on Christian Egypt “Historiography in Egypt 284-641 A.D.: Historical, Ecclesiastical, Documentary, and Archaeological Evidence”, May 2015. Cairo, Egypt.
- Shiozawa, D. K., R. P. Evans. 2014. Phylogenetics to Ecology – the past and a glimpse of the future illustrated with cottids, whitefish, and lake suckers. Tri-State Colorado River Cutthroat Trout Conservation Team, December 2014. Grand Junction, Colorado.
- Shiozawa, D. K., S. Oh, R. P. Evans, D. Houston, N. Davis, J. Page. 2014. Phylogenetic relationships of cottids (Pisces:Cottidae) in the upper Snake River Plain of Idaho. Society of Freshwater Science 2014 Annual Meeting and the Joint Aquatic Sciences Meeting, May 2014. Portland, Oregon.
- Shiozawa, D. K., R. P. Evans, P. Unmack, D. Houston. 2014. Phylogenetic relationships of the cutthroat trout - from Behnke to the future. American Fisheries Society, Utah Chapter, March 2014. Price, Utah.
- Shiozawa, D. K., D. Houston, P. Unmack, S. Oh, D. Neely, R. P. Evans. 2014. Molecular studies of fishes as they relate to interrelationships among the Bonneville, Lahontan and Snake River basins. Late Cenozoic to Recent Geologic and Biotic History of the Snake

River, Smithsonian Institution, National Museum of Natural History, Idaho State University, March 2014. Boise, Idaho.

- Houston, D. D., N. Davis, J. Page, P. Ridge, R. P. Evans, D. Shiozawa. 2013. Whole transcriptome sequencing facilitates nuclear marker development in salmonid fishes. Evolution 2013, Society for the Study of Evolution, Society of Systematic Biologists, and the American Society of Naturalists, June 2013. Snow Bird, UT.
- Oh, Sunyeong, R. P. Evans, N. Davis, D. Houston, J. Page, D. Shiozawa. 2013. Transcriptomes: a tool for developing phylogenetic markers in Western North American sculpin *Cottus* spp (Pisces:Cottidae). Society for Freshwater Science/North American Benthological Society Annual Meeting. May 2013.
- Houston, D. D., D. B. Elzinga, P. J. Maughan, S. M. Smith, J. S. K. Kauwe, R. P. Evans, R. B. Stinger, D. K. Shiozawa. 2012. Next generation sequencing and bioinformatics procedures identify single nucleotide polymorphisms capable of differentiating cutthroat trout subspecies. Desert Fishes Council, 44th Annual Meeting. November 2012. Death Valley, CA.
- Shiozawa, D. K. and R. P. Evans. 2012. Review of greenback cutthroat trout genetics – the multi-basin subdivision of this cutthroat trout and where do we go from here? Utah Division of Wildlife Resources, Colorado River cutthroat trout inter-agency recovery team. November 2012. Salt Lake City, UT
- Shiozawa, D. K., D. D. Houston, R. P. Evans. 2012. Improving molecular studies in aquatic groups with next-generation sequencing: marker discovery and data set generation. Society of Freshwater Science, 2012 Annual Meeting. May 2012. Louisville, KY
- Evans, R.P. and D. Whitchurch. 2012. Burial Landscape of the Graeco-Roman Cemetery at Fag el Gamous, Fayoum: An Initial Synthesis. American Research Center in Egypt Annual Meeting. April 27-29, 2012. Providence, RI, USA
- Evans, R. P. 2012. Genetic research, capabilities, approaches, and interpretation. 2012. Workshop for Utah Chapter of the American Fisheries Society, Annual Meeting. March 26, 2012. Bullfrog, UT, USA.
- Evans, R. P. 2011. Next generation sequencing and mummies. BYU Chemical Engineering. December 2011, Provo, UT
- Evans, R. P., A. Alley, C. Eppich, G. Mullins, C. Newey, D. Whitchurch, R. Heckmann. 2011. Rethinking Burial Dates at a Graeco-Roman Cemetery: Fag el Gamous, Fayoum, Egypt. 7th World Congress on Mummy Studies. June 2011, San Diego, CA
- Evans, R. P., D. K. Shiozawa, P. J. Unmack, D. Houston, J. Mathis. 2011. Cutthroat Trout Phylogenetic Relationships: Geologic Processes Preserved in DNA. 92nd Annual

Meeting of the Pacific Chapter of the American Association for the Advancement of Science (AAAS). June 2011, San Diego, CA

Sun, Y. O., P. Unmack, R. P. Evans, D. K. Shiozawa. 2011. Phylogeographic Relationships of *Cottus bairdii*. Annual Meeting Utah Chapter of the American Fisheries Society. March 2011, Salt Lake City, UT

Houston, D., R. P. Evans, D. K. Shiozawa. 2010. Evaluating the genetic purity of relict dace populations in the central Great Basin. 42nd Annual Meeting of the Desert Fishes Council November 2010, Moab, UT

Evans, R. P., D. K. Shiozawa, P. Unmack, J. Mathis. 2010. Greenback Cutthroat Trout in the Colorado River Basin: The original homestead? 42nd Annual Meeting of the Desert Fishes Council. November 2010, Moab, UT

Shiozawa, D. K., R. P. Evans, P. Unmack, A. Johnson. 2010. Cutthroat trout phylogenetic relationships with an assessment of geographical associations among several cutthroat trout subspecies. Wild Trout X. September 2010, West Yellowstone, MT

Unmack, P., D. K. Shiozawa, R. P. Evans. 2010. Cutthroat trout phylogeny. Annual Meeting of the American Society of Ichthyologists and Herpetologists. July 2010. Providence, RI

Shiozawa, D. K., R. P. Evans, D. Houston, P. Unmack. 2010. Comparative phylogeography and western drainage history: a geographical view through a genetic window. Annual Meeting Western Division of the American Fisheries Society. April 2010, Salt Lake City, UT

Evans, R. P., D. K. Shiozawa, P. Unmack. 2010. A mitochondrial DNA phylogeny of *Oncorhynchus clarkii*, cutthroat trout. Annual Meeting Western Division of the American Fisheries Society. April 2010, Salt Lake City, UT

Shiozawa, D. K., R. P. Evans, B. Weibel. 2009. Comparative phylogeography - the role of history in the structuring of aquatic communities. Annual Meeting North American Benthological Society. August 2009. Grand Rapids, MI

Peters, R., R. P. Evans, C. W. Griggs. 2009. Demography of an Egyptian necropolis. West Coast Biological Sciences Undergraduate Research Conference. April 2009. San Diego, CA

Stutz, H., R. P. Evans, K. Tanner, R. Rader, D. K. Shiozawa. 2008. Estimating dispersal of spring invertebrates through genetic diversity in threatened habitats of the Great Basin. Annual Meeting Utah Chapter of the American Fisheries Society. March 2008, Moab, UT

- Laitinen, N., D. K. Shiozawa, R. P. Evans. 2008. Genetic relationships of mountain suckers and bluehead suckers based on mitochondrial DNA. Annual Meeting Utah Chapter of the American Fisheries Society. March 2008, Moab, UT
- Shiozawa, D. K., R. P. Evans, B. Miller, M. McKell. 2008. Westslope native fishes: roundtail chub (*Gila robusta*), bluehead sucker (*Catostomus discobolus*), flannelmouth sucker (*Catostomus latipinnis*). UDWR Three Species Meeting. April 2008, Salt Lake City, UT
- Shiozawa, D. K., D. Christensen, R. P. Evans. 2007. Genetic relationships of *Cottus bairdii* in Butterfield Springs, NV to other populations of *Cottus bairdii*. 39th Annual meeting of the Desert Fishes Council. November 2007. Ventura, CA
- Laitinen, N. D. K. Shiozawa, R. P. Evans. 2007. Genetic relationships of mountain sucker and bluehead sucker based on mitochondrial DNA. 39th Annual meeting of the Desert Fishes Council. November 2007. Ventura, CA
- Janetski, D., D. K. Shiozawa, R. P. Evans. 2007. Genetic evidence for restricted gene flow between cutthroat trout spawning populations in Yellowstone Lake. 55th Annual Meeting of the North American Benthological Society. Columbia, SC
- Johnson, A., D. K. Shiozawa, R. P. Evans. 2007. Resolving phylogenetic relationships of cutthroat trout in the Bear River drainage. Annual Meeting Utah Chapter of the American Fisheries Society. March 2007, Logan, UT
- Evans, R. P., D. K. Shiozawa. 2007. Genetics of Colorado River cutthroat trout. Colorado River Cutthroat Trout Regional Conference. Denver, CO
- Shiozawa, D. K., R. P. Evans, D. Christensen, M. Campbell. 2006. Sculpin and drainage history of the Eastern Snake River Plain, Idaho. 54th Annual Meeting of the North American Benthological Society. Anchorage, AK
- Janetski, D., R. P. Evans, D. K. Shiozawa, A. Johnson. 2006. Evolution, distribution and phylogeny of cutthroat trout in Utah and Wyoming. Annual Meeting of the American Fisheries Society Western Region. April 2006. Idaho Falls, ID
- Shiozawa, D. K., D. Christensen, R. P. Evans, M. Campbell. 2006. Sculpin dispersal and phylogenetics in the interior of Western North America. Deseret Fishes Council. November 2006. Death Valley, CA
- Johnson, A., D. Janetski, D. K. Shiozawa, R. P. Evans. 2006. Evolution, distribution, and phylogeny of the Yellowstone cutthroat trout in the Snake River headwaters and Wind/Bighorn drainage, Wyoming. Annual Meeting of the American Fisheries Society Idaho Chapter. Idaho Falls, ID

- Mock, K. E., R. P. Evans, M. Crawford, B. L. Cardall, S. U. Janecke, M. P. Miller. 2006. Molecular structuring in Utah and June suckers. Annual Meeting of the American Genetics Association, Genetics of Speciation Symposium. July 2006. Vancouver, BC, Canada
- Evans, R. P., A. Moffat, D. K. Shiozawa, J. Crowley. 2005. A Phylogenetic Analysis of Sculpin (genus *Cottus*) in Montana. Annual Meeting of the American Fisheries Society. Anchorage, AK
- Mueller, A., D. K. Shiozawa, R. P. Evans. 2005. Distribution of mitochondrial lineages in the Colorado River Cutthroat trout. Annual Meeting of the American Fisheries Society. Anchorage, AK
- Johnson, A., D. K. Shiozawa, R. P. Evans. 2005. Resolving Phylogenetic Relationships of Selected Cutthroat Trout Subspecies, *Oncorhynchus clarki* (Salmonidae). Annual Meeting of the American Fisheries Society. Anchorage, AK
- Christensen, D., D. K. Shiozawa, J. Crowley, M. Campbell, R. P. Evans. 2005. The Cottids of the Lost River sinks - their relationships and origin. Annual Meeting of the American Fisheries Society. Anchorage, AK
- Janetski, D., D. K. Shiozawa, R. P. Evans. 2005. The genetic structure of spawning populations of cutthroat trout in Yellowstone Lake. Annual Meeting of the American Fisheries Society. Anchorage, AK
- Miller, B., R. P. Evans, D. K. Shiozawa. 2005. The Phylogeography of Mountain Whitefish in Western North America. Annual Meeting of the American Fisheries Society. Anchorage, AK
- Smith, C., J. Crowley, D. K. Shiozawa, R. P. Evans. 2005. Phylogenetic relationships of *Cottus beldingi* in the Basin and Range and Colorado Plateau of Western North America. Annual Meeting of the North American Benthological Society. New Orleans, LA
- Johnson, A., D. K. Shiozawa, D. Janetski, R. P. Evans. 2005. Resolving Phylogenetic Relationships of the Yellowstone Cutthroat Trout Complex. Annual Meeting of the Bonneville Chapter, American Fisheries Society. Garden City, UT
- Shiozawa, D. K. and R. P. Evans. 2004. Insights into the drainage basin history of Western North America - fragmentary information based on phylogenies of aquatic organisms. Annual Meeting of the Desert Fishes Council. November 11-14, 2004, Tucson, AZ, USA.
- Miller, B. A., R. P. Evans, and D. K. Shiozawa. 2004. Phylogeography of *Prosopium* in Western North America.. Annual Meeting of the Desert Fishes Council. November 11-14, 2004, Tucson, AZ, USA.

- Crowley, J., D. K. Shiozawa, and R. P. Evans. 2004. Phylogenetics and cottids. Annual Meeting of the Desert Fishes Council. November 11-14, 2004, Tucson, AZ, USA.
- Evans, R. P. 2003. When Bones Speak. Dead Cats Society, Snow College. October 1, 2003. Ephraim, UT
- Kauwe, J. S., D. K. Shiozawa, and R. P. Evans. 2003. Using DNA markers to investigate interbasin relationships and define species classification of stoneflies. 51st Annual meeting of the North American Benthological Society. May 27-June 1, 2003. Athens, Georgia.
- Johnson, A., J. S. Kauwe, D. K. Shiozawa, and R. P. Evans. 2003. The general applicability of a cytochrome B primer for stoneflies. 51st Annual meeting of the North American Benthological Society. May 27-June 1, 2003. Athens, Georgia. (Undergraduate poster)
- Hansen, J., A. Johnson, J. S. Kauwe, D. Janetski, D. K. Shiozawa, and R. P. Evans. 2003. Can cytochrome B sequences detect a stream capture event in the Bonneville Basin? 51st Annual meeting of the North American Benthological Society. May 27-June 1, 2003. Athens, Georgia. (Undergraduate poster)
- Crowley, J. M., R. P. Evans, and D. K. Shiozawa. 2003. A phylogenetic analysis of sculpin (Cottidae: *Cottus*) in the Basin and Range Province of western North America based on the ND4-L/ND4 region of the mitochondrial genome. Joint meeting of the Colorado-Wyoming and Bonneville Chapters of the American Fisheries Society. March 4-6, 2003. Grand Junction, Colorado.
- Miller, B. A., D. K. Shiozawa, and R. P. Evans. 2003. The phylogeography of the mountain whitefish (*Prosopium williamsoni*) in western North America as reflected in the cytochrome b gene of the mitochondrial genome. Joint meeting of the Colorado-Wyoming and Bonneville Chapters of the American Fisheries Society. March 4-6, 2003. Grand Junction, Colorado. (Undergraduate oral presentation)
- McKell, M. D., D. K. Shiozawa, and R. P. Evans. 2003. Genetic variation and phylogeography of speckled dace in the intermountain west, USA, based on mitochondrial DNA sequences. Joint meeting of the Colorado-Wyoming and Bonneville Chapters of the American Fisheries Society. March 4-6, 2003. Grand Junction, Colorado.
- McKell, M. D., B. A. Miller, D. K. Shiozawa, and R. P. Evans. 2003. Phylogeographic aspects of four native fishes in the Colorado River drainage in western Colorado. Joint meeting of the Colorado-Wyoming and Bonneville Chapters of the American Fisheries Society. March 4-6, 2003. Grand Junction, Colorado.
- McKell, M. D., D. K. Shiozawa, and R. P. Evans. 2003. Phylogeography of speckled dace, *Rhinichthys osculus*, in the Intermountain Region, U. S. A., Based on Mitochondrial DNA Sequences. International Biogeography Society. January 6-2003. Mesquite Nevada .

- Miller, B. A., D. K. Shiozawa, and R. P. Evans. 2003. The phylogeography of the mountain whitefish (*Prosopium williamsoni*) and its phyletic relationships with the endemic Bear Lake whitefishes. International Biogeography Society. January 6-2003. Mesquite Nevada. (Undergraduate poster)
- Shiozawa, D. K. and R. P. Evans. 2002. Cutthroat trout genetics and population viability. Intermountain West Cutthroat Trout Population Viability Workshop. Salt Lake City, UT. June 10, 2002.
- Shiozawa, D. K. and R. P. Evans. 2002. The interbasin dispersal of cutthroat trout: comparing phylogenetic relationships and geological history. 50th Annual meeting of the North American Benthological Society. May 27-June 2, 2002. Pittsburgh, Pennsylvania.
- Kauwe, J. S., D. K. Shiozawa, and R. P. Evans. 2002. Using DNA markers to investigate interbasin relationships and dispersal of stoneflies. 50th Annual meeting of the North American Benthological Society. May 27-June 2, 2002. Pittsburgh, Pennsylvania.
- Shiozawa, D. K. and R. P. Evans. 2002. Biogeography and genetic patterns of Colorado River Cutthroat Trout - their relationship with other western salmonids. Workshop on Colorado River Cutthroat trout phylogenetics for the Colorado River Cutthroat Trout Recovery Team, with R. P. Evans. Conference sponsored by the Colorado Division of Wildlife. May 21-22, 2002. Montrose, CO.
- Evans, R. P. and D. K. Shiozawa. 2002. The application of DNA analyses to investigations of introgression and phylogeny of Colorado River Cutthroat Trout. Workshop on Colorado River Cutthroat trout phylogenetics for the Colorado River Cutthroat Trout Recovery Team, with R. P. Evans. Conference sponsored by the Colorado Division of Wildlife. May 21-22, 2002. Montrose, CO.
- Evans, R. P. 2001. June Sucker Genetics. Invited paper at June Sucker Summit, Salt Lake City, May 8, 2001
- Shiozawa, D. K. and R. P. Evans. 2001. The evolution of the cutthroat trout with insights into the evolution of the Greenback Cutthroat Trout, *Oncorhynchus clarki stomias*. Invited workshop instruction with the Colorado Division of Wildlife. August 27-28, 2001. Denver, Colorado.
- R. P. Evans and Shiozawa, D. K. 2001. The application and theory of DNA based phylogenetics in the projection and interpretation of phylogenetic relationships among cutthroat trout with insights into the evolution of the Greenback Cutthroat Trout, *Oncorhynchus clarki stomias*. Invited workshop instruction with the Colorado Division of Wildlife. August 27-28, 2001. Denver, Colorado.
- Evans, R. P. Genetic Factors and Recovery. Western Division American Fisheries Society Annual Meeting. July 27, 2000. Telluride, Colorado.

- Shiozawa, B., B. Bogumill, B. Dever, N. Darby, D. Shiozawa, and R. P. Evans. The Genetic Identity of Cutthroat Trout in Great Basin National Park. Bonneville Chapter American Fisheries Society Annual Meeting. March 15, 2000. Salt Lake City, Utah
- Melville, D., and R. P. Evans. A survey of genetic variation in channel catfish in Wyoming. Bonneville Chapter American Fisheries Society Annual Meeting. March 15, 2000. Salt Lake City, Utah
- Shiozawa, D. K. and R. P. Evans. Hybridization issues and cutthroat trout. Inland Interstate Cutthroat Trout Meeting. February 23, 2000. Salt Lake City, Utah.
- Evans, R. P. Genetics and the Endangered Species Act. Utah Valley State College, Pope Science Lecture Symposium. November 29, 2000. Orem, Utah
- Shiozawa, D. K. and R. P. Evans. The ghost of multiple invasions: mitochondrial DNA and cutthroat trout phylogenetics. 47th Annual meeting of the North American Benthological Society. May 24-28, 1999. Duluth, Minnesota.
- Shiozawa, D. K. and R. P. Evans. March 31, 1999. Genetic applications to species conservation. Invited paper. Region 4 Cutthroat Trout Conservation and Restoration Workshop. U. S. Forest Service. March 31- April 2, 1999. Salt Lake City, Utah.
- Shiozawa, D. K. , R. P. Evans, and D. Proebstel. March 2, 1999. Future technologies: a DNA based dichotomous key for interior salmonid identification. 34th Annual Meeting of the Colorado-Wyoming Chapter American Fisheries Society. March 2-4, 1999. Cheyenne, Wyoming.
- Evans, R. P. and D. K. Shiozawa. March 1999. Prosopium phylogenies. Bonneville Chapter, American Fisheries Society. March 16-18, 1999. Moab, Utah.
- Evans, R. P. September 1998. Molecular Biology and Phylogenetic Systematics. Chinese Academy of Sciences. Beijing, China.
- Shiozawa, D. K. and R. P. Evans. The role of drainage basin history in the mitochondrial DNA diversity of Lahontan, Bonneville, and Colorado River cutthroat trout. Joint meetings of the Colorado/Wyoming and the Bonneville Chapters of the American Fisheries Society. March 3-4, 1998. Grand Junction, Colorado.
- Bray, A., R. P. Evans, and D. K. Shiozawa. The distribution of nuclear DNA markers in an introgressed metapopulation of cutthroat trout in the Sheep Creek Drainage, Utah. Joint meeting of the Colorado/Wyoming and the Bonneville Chapters of the American Fisheries Society. March 3-4, 1998. Grand Junction, Colorado.
- Jones, C., L. Etchberger, R. P. Evans, and D. K. Shiozawa. A cutthroat trout metapopulation study in Sheep Creek -- an overview of mtDNA investigations. Joint meeting of the Colorado/Wyoming and the Bonneville Chapters of the American Fisheries Society.

March 3-4, 1998. Grand Junction, Colorado.

Evans, R. P., L. Tao, and D. K. Shiozawa. June sucker phylogenetic relationships as determined through short fragment PCR. Joint meetings of the Colorado/Wyoming and the Bonneville Chapters of the American Fisheries Society. March 3-4, 1998. Grand Junction, Colorado.

Shiozawa, D. K., and R. P. Evans. Use of mtDNA to identify introgression with exotics: a Case study with cutthroat trout. 46th Annual Meeting of the North American Benthological Society. June 2-5, 1998. Prince Edward Island, Canada.

Tao, L., R. P. Evans, and D. K. Shiozawa. Genetic status of June sucker (*Chasmistes liorus*) before the 1930's drought. Bonneville Chapter of the American Fisheries Society. March 20, 1997. Price, Utah.

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Funding		Total	\$1,372,394
2015	CRCT Genetic Purity of Cutthroat Trout Populations. Co-PI with Dennis K. Shiozawa (BYU)		\$2,140
2015	Nuclear and Mitochondrial DNA Analysis of Cutthroat Trout. Co-PI with Dennis K. Shiozawa (BYU) and John Kauwe (BYU)		\$46,200
2014	Nuclear and Mitochondrial DNA Analysis of Cutthroat Trout. Co-PI with Dennis K. Shiozawa (BYU) and John Kauwe (BYU)		\$46,200
2013	Genetic status of speckled dace in Kelly Warm Spring, Grand Teton National Park, WY. Co-PI with Dennis K. Shiozawa (BYU)		\$1,840
2013	Nuclear and mitochondrial DNA analysis of Cutthroat trout. Co-PI with Dennis K. Shiozawa (BYU) and John Kauwe (BYU).		\$46,200
2012	Nuclear and mitochondrial DNA analysis of Cutthroat trout. Co-PI with Dennis K. Shiozawa (BYU) and John Kauwe (BYU).		\$46,200
2012	Genetic analysis of Colorado/Greenback Cutthroat trout. Co-PI with Dennis K. Shiozawa (BYU). Colorado Division of Wildlife		\$2,211
2011	Genetic analysis of Colorado/Greenback Cutthroat trout. Co-PI with Dennis K. Shiozawa (BYU). Colorado Division of Wildlife		\$4,950
2011	Genetic testing of relict dace from Ruby Lake National Wildlife refuge. Co-PI with Dennis K. Shiozawa (BYU). US Fish and Wildlife Service, Otis Bay.		\$13,500
2011	Genetic Analysis of Utah Cutthroat trout. Co-PI with Dennis K. Shiozawa (BYU). Utah Division of Wildlife Resources.		\$60,990

2010	Genetic analysis of Colorado/Greenback Cutthroat trout. Co-PI with Dennis K. Shiozawa (BYU). Colorado Division of Wildlife	\$14,592
2010	Genetic evaluation of Bonneville Cutthroat trout conservation. Co-PI with Dennis K. Shiozawa (BYU). US Department of Interior.	\$39,715
2010	Greenback Cutthroat trout: Native or introduced. Co-PI with Dennis K. Shiozawa (BYU). Utah Division of Wildlife Resources.	\$5,000
2009	Genetic Analysis of Utah Cutthroat trout. Co-PI with Dennis K. Shiozawa (BYU). Utah Division of Wildlife Resources.	\$39,375
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2008	Cutthroat trout DNA analysis. Co-PI with Dennis K. Shiozawa (BYU). Bureau of Land Management.	\$2,400
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2007	Genetic Analysis of Utah Cutthroat trout. Co-PI with Dennis K. Shiozawa (BYU). Utah Division of Wildlife Resources.	\$40,500
2006	White River National Forest Colorado River Cutthroat trout analysis. Co-PI with Dennis K. Shiozawa (BYU). US Forest Service.	\$20,000
2005	Colorado River cutthroat trout DNA analysis. Co-PI with Dennis K. Shiozawa (BYU). US Forest Service - Paonia Ranger District.	\$10,030
2004	Geographical patterns in aquatic organisms in the Western North America. Sant Endowment Fund, College of Biology and Agriculture, BYU	\$20,000.
2004	An investigation of the distribution of <i>Cottus bairdi</i> and <i>Cottus cognatus</i> (Cottidae) in	

- Montana. Co-PI with Dennis K. Shiozawa (BYU) and Anne Tews (Montana Fish, Wildlife, and Parks). U. S. Fish and Wildlife Service SWIG grants program.
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- 2003 Genetic Analysis of Cutthroat Trout Subspecies. Co-PI with Dennis K. Shiozawa (BYU). Utah Division of Wildlife Resources.
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- 2003 Colorado River Cutthroat Trout Genetics . Co-PI with Dennis K. Shiozawa (BYU). Colorado Division of Wildlife.
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- 2002 Genetic Analysis of Native Yellowstone Cutthroat Trout Populations. Co-PI with Dennis K. Shiozawa (BYU). Big Horn National Forest, Wyoming.
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- 2001 Molecular and Cellular Biology Virtual Laboratory. BYU Center for Instructional Design.
\$50,000
- 2001 U.S. Forest Service-Paonia Ranger District- Colorado River Cutthroat Trout. Co-PI with Dennis K. Shiozawa (BYU). U. S. Forest Service.
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2000	Nuclear and Mitochondrial analysis of Colorado River Cutthroat Trout. Co-PI with Dennis K. Shiozawa (BYU). Wyoming Game and Fish Department.	\$24,999
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2000	U.S. Forest Service-Paonia Ranger District- Colorado River Cutthroat Trout. Co-PI with Dennis K. Shiozawa (BYU) U. S. Forest Service.	\$9,971
2000	Fag el Gamous Database Development. Center for Instructional Design, BYU	\$8,000
2000	U.S. Forest Service-Paonia Ranger District- Colorado River Cutthroat Trout. Co-PI with Dennis K. Shiozawa (BYU). U. S. Forest Service.	\$9,971
2000	Nuclear and Mitochondrial analysis of Christensen Creek Cutthroat Trout: Hybridization and Whirling Disease. Co-PI with Dennis K. Shiozawa (BYU). Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming, Laramie, Wyoming.	\$4,000
1999	Nuclear and Mitochondrial analysis of Colorado River Cutthroat Trout. Co-PI with Dennis K. Shiozawa (BYU). Colorado Department of Natural Resources, Division of Wildlife.	\$10,787
1999	U.S. Forest Service-Paonia Ranger District- Colorado River Cutthroat Trout. Co-PI with Dennis K. Shiozawa (BYU). U. S. Forest Service.	\$6,968
1999	Nuclear and Mitochondrial analysis of Colorado River Cutthroat Trout. Co-PI with Dennis K. Shiozawa (BYU). Wyoming Game and Fish Department.	\$9,400
1999	Utah Cutthroat genetics. Co-PI with Dennis K. Shiozawa (BYU). Utah Division of Wildlife Resources.	\$77,400
1999	The identification of cutthroat trout from Great Basin National Park. Co-PI with Dennis	

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\$2,000
- 1996 The genetic variation of Lahontan Cutthroat Trout based on DNA techniques with special emphasis on trout from Pyramid Lake, Nevada. Co-PI with Dennis K. Shiozawa (BYU). U. S. Fish and Wildlife Service.
\$5,300
- 1993 Stock Assessment of Salmonid Populations. Co-PI with Dennis K. Shiozawa (BYU). BC Hydro
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- 1993 Dairy cattle trait analyses using random amplified polymorphic DNA. BYU Agriculture Station.
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1991	Swine trait analyses using random amplified polymorphic DNA. Co-PI with Robert L. Park (BYU), W. Ralph Anderson (BYU), and Dan J. Fairbanks (BYU). Pig Improvement Company.	\$2,500
1991	Genetic relationships of Arabian Sea Lobster (<i>Homarus</i>) populations from Oman. Co-PI with Richard N. Williams (Boise State University) and Bill Liss (Oregon). US/Sultanate of Oman Joint Science Commission.	\$25,000
1990	June Sucker Taxonomy - DNA Investigation. U. S. Fish and Wildlife Service	\$75,000
1989	Population structure and genetic variation within and among fragmented subpopulations of the Concho water snake, <i>Nerodia Harteri paucimaculata</i> . Co-PI with Jack W. Sites (BYU). Colorado River Municipal Water District.	\$30,770
1989	Taxonomic relationships among Cutthroat trout of the Western Great Basin: Subspecific status for the Humboldt Cutthroat? Co-PI with Richard Williams (Boise State University) and Dennis Shiozawa (BYU). Nevada Department of Wildlife.	\$60,000
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- McKell, M. D., D. K. Shiozawa, and R. P. Evans. 2003. Genetic variation and phylogeography of speckled dace in the Intermountain West, USA, based on mitochondrial DNA sequences. Joint meeting of the Colorado-Wyoming and Bonneville Chapters of the American Fisheries Society. March 4-6, 2003. Grand Junction, Colorado. Proceedings of the Joint Meeting of the Bonneville and Colorado-Wyoming Chapters of the American Fisheries Society. p 33.
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- Williams, R. N., D. K. Shiozawa, and R. P. Evans. 1992. Genetic analysis of Owyhee River rainbow trout populations from Northeastern Nevada. Boise State University Evolutionary Genetics Lab Report 92-1.
- Xiong, S., W. R. Andersen, R. P. Evans, D. J. Weber, Y. Ye and R. L. Park. 1991. Parentage identification in Mink using random amplified polymorphic DNA (RAPD). Proceedings of the American Society of Animal Science 42:77-80.
- Evans, R. P., and D. Fairbanks. 1990. Plant DNA purification on the Model 340A. Biosystems Reporter 4:21-21.
- Larsen, M. H., T. D. Davis, and R. P. Evans. 1989. Modulation of protein expression in uniconazol treated soybeans in relation to heat stress. Proceedings of the Growth Regulator Society of America 15:177-182.

Significant Public Service

2012 - present	State of Utah Fish Health Policy Board (Governor appointed)
2003 - present	Federal June Sucker Recovery Team
2004 - present	Chair, Provo City Pleasant View Neighborhood
1994 -2002	Chair, Provo City Riverbottoms Neighborhood
1998	Chair (Governor appointed), Utah Governors Council for People with Disabilities
1996-1999	Utah State Board of Education Advisory Committee on the Handicapped (State Board of Education appointed)
1991 - 1994	Member, Utah Childrens Mental Health Advisory Board
1992-1997	Citizen Member (Governor appointed), Utah Governors Council for People with Disabilities

Department Committees/Assignments

2012 - present	Member, Department of Microbiology and Molecular Biology, Undergraduate Education Committee
2011 - present	Coordinator, Department of Microbiology and Molecular Biology, Honors Program
2010 - 2012	Chair, Department of Microbiology and Molecular Biology, Resource Committee
2012	Chair, Department of Microbiology and Molecular Biology, Medical Laboratory Science Faculty Search Committee
2011	Chair, Department of Microbiology and Molecular Biology, Molecular/Cellular Biology Faculty Search Committee
2004	Chair, Department of Microbiology and Molecular Biology, Immunology Faculty Search Committee
2003	Chair, Department of Microbiology and Molecular Biology, Core Facility Faculty Search Committee
2002	Chair, Department of Microbiology and Molecular Biology, Molecular

Biology Faculty Search Committee

2002 -2004	Chair, Department of Microbiology and Molecular Biology, Resource Committee
2002 - 2004	Member, Department of Microbiology and Molecular Biology, Executive Committee
1995 - 2002	Coordinator, Department of Zoology, Honors Program
1999 - 2000	Member, Department of Zoology, Search and Hiring Committee
1995 - 1999	Member, Department of Zoology, Graduate Committee
1988 - 1996	Manager, Department of Zoology VAX account
1988 - 1996	Member, Department of Zoology, Computer Users Committee
1988 - 1996	Chair, Department of Zoology, Seminar Committee

College Committees/Assignments

2011-2015	Reviewer, Sant Endowment
2001	Organized and accompanied college undergraduate students to West Coast Biological Sciences Undergraduate Research Conference, Santa Clara, CA
1995 - 1997	Member, Molecular Biology Steering Committee
1995 - 2002	Chair, Computer Users Committee
1995 - 1996	Advisor, College of Biology and Agriculture Student Advisory Committee
1995 - 1996	Deputy Computer Support Representative, College of Biology and Agriculture
1995 - 1996	Manager, College of Biology and Agriculture VAX account
1992	Reviewer, College of Biology and Agriculture Grants
1991	Reviewer, College of Biology and Agriculture Grants

1989 Chair, Botany/Microbiology/Zoology Core Courses (BMZ375, BMZ385, BMZ526) Review and Development Committee

University Committees/Assignments

2011 - present	Beta Tester, BYU Learning Suite
2012-2015	Grant Reviewer, ORCA
2012	Member, University Catalog Review Committee
2011	Member, Blended Classrooms Survey
2011	Faculty Advisory Council [note: elected by peers but not appointed]
2011	Grant Reviewer, ORCA
2009	Faculty, London Study Abroad
2010	Grant Reviewer, ORCA
2006	Faculty Advisor, Gospel Choir Student Club
2005	Beta Tester, Blackboard Implementation
2005	Registration Focus Group
2003	Beta Tester, Blackboard 6.0
2002	Faculty Advisory Council [note: elected by peers but not appointed]
2001	Beta Tester, IP Telephony
2001	Beta Tester, Network Services Manager
2001	Beta Tester, RouteY Post Office v.3
2001	Blackboard Users Group Design Critique
1997 -2002	Member, Information Technology Requirements Committee
1995	Department Representative, University Web Expo
1994 - 2004	Faculty Advisor, Operation Smile Student Club
1989 - 1992	Member, University Biohazard Review Committee

Professional Service

2015 - present	Chair, State of Utah Fish Health Policy Board
2012 - present	State of Utah Fish Health Policy Board (Governor appointed)
2003 - present	Federal June Sucker Recovery Team
1990 - 2004	Technical Advisor, Colorado Basin Conservation and Recovery Team
1997 - 2004	Editor, American Fisheries Society, Western Division Newsletter
1991 - 1996	Editor, American Fisheries Society, Bonneville Chapter Newsletter
1984-1988	Member, Society for Industrial Microbiology, Education Committee

Teaching Improvement Grants

2006	Asynchronous/Synchronous Distance Teaching Grant, College of Life Sciences, \$2,500
2005	Academy on Teaching and Learning, General Education, \$1,000
2003	Honors 259 Course Improvement Grant, BYU General Education, \$1,000
2001	Cellular Biology Pathways Online, BYU Center for Teaching and Learning, \$65,000
1997	Zoology 373 Improvement Grant, Faculty Teaching Center, \$3,200 (with Bell and Bradshaw)

Visiting Researchers

Dr. Atif El-Naggar. Ain Shams University, Egypt. February 2010 to June 2010; July 2013

Dr. Cemal Oguz, Ataturk University, Turkey. July 2011 to December 2011; June to October 2012.

Dr. Nahla Radwan, Tanta University, Egypt. September 2007 to April 2008

Dr. Ying Wang, Institute of Zoology, Chinese Academy of Sciences. September 1997 to March 1998.

Dr. Shen Xioxing, Institute of Zoology, Chinese Academy of Sciences. September 1997

to March 1998.

Dr. Edward Peters, University of Nebraska, Lincoln. June 1, 1997-June 9, 1997

CURRICULUM VITAE

James L. Farmer

Sources:

UA 909; Faculty Biographical Files; University Archives; L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University

Daily Herald Obituary: http://www.heraldextra.com/lifestyles/announcements/obituaries/james-lee-farmer/article_be1c1c91-1380-51fa-93c6-b9595dc99bea.html

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: 8 August 1938, South Gate, California

Death: 17 August 2008, Salt Lake City, Utah

Education:

BS, Chemistry, California Institute of Technology, 1960

PhD, Biology, Brown University, 1966

Employment:

University of Colorado Medical Center, 1966-1968

Faculty Member, Department of Zoology, Brigham Young University, 1969-2000

Teaching:

Molecular Biology, Radiation Biology, Animal Biology, Biochemical Genetics, Theoretical Zoology, Genetics and Molecular Biology

Honors and Awards:

Alcuin Fellowship, Brigham Young University, 1987.

Membership in Societies:

American Association for the Advancement of Science

Genetics Society of American

Federation of American Scientists

Meetings and Seminars (* Presentation or Poster):

*Transformation Meeting, Estes Park, CO, 1964
Federation Meetings, Atlantic City, NJ, 1965
*Transformation Meeting, Estes Park, CO, 1965
*Genetics Society of America, Chicago, IL, 1966
*Presented seminar to Department of Genetics, Stanford University, Palo Alto, CA, 1967
Transformation Meeting, Estes Park, CO, 1967
Cell Biology Society, Denver, CO, 1967
Symposium on Fundamental Cancer Research, Houston, TX, 1968
Cell Biology Society, Boston, MA, 1968
Society of Western Medical Schools, Asilomar, CA, 1970
Utah Academy of Arts & Sciences, Logan, UT, 1973
*XIII International Congress of Genetics, Berkeley, CA, 1973
Genetics Society of America, Bloomington, IN, 1974
*Utah Academy of Arts & Sciences, Salt Lake City, UT, 1975
American Society of Biological Chemists, San Francisco, CA, 1976
*Presented seminar to Department of Nutritional Chemistry, University of California, Berkeley, CA, 1976
Genetics Society of America, Salt Lake City, UT, 1976
*Annual Drosophila Research Conference, La Jolla, CA, 1977
Utah Academy of Arts & Sciences, Logan, UT, 1978
*Genetics Societies of America and Canada & The American Society of Naturalists, Edmonton, Alberta, Canada, 1979
*Genetics Society of America, Boulder, CO, 1980
Annual Biology Colloquium, Eugene, OR, 1981
Congress for Recombinant DNA Research, Los Angeles, CA, 1982
*Annual Drosophila Research Conference, Asilomar, CA, 1983
Society for the Study of Evolution & American Society of Naturalists, Crested Butte, CO, 1984
*Genetics Societies of America and Canada, Vancouver, BC, 1984
*Genetics Society of America, Boston, MA, 1985
*Presented paper to Department of Biology, Brown University, Providence, RI, 1985
*Annual Drosophila Research Conference, Asilomar, CA, 1986
*Genetics Society of America, San Francisco, CA, 1987
*Society for the Study of Evolution & American Society of Naturalists, Bozeman, MT, 1987
Drosophila Research Conference, Toronto, Ontario, Canada, 1988
*XVIth International Congress of Genetics, Toronto, Ontario, Canada, 1988

Research Publications:

Farmer JL, and Rothman F. Transformable thymine-requiring mutant of *Bacillus subtilis*. *J Bacteriol* 89:262-263, 1965.

Wilson MC, Farmer JL, and Rothman F. Thymidylate synthesis and aminopterin resistance in *Bacillus subtilis*. *J Bacteriol* 92:186-196, 1966.

Farmer JL. Deoxyribonucleic acid degradation in *Bacillus subtilis* during exposure to actinomycin D. *J Bacteriol* 95:1450-1460, 1968.

Hintze DN, and Farmer JL. Identification of poly-gamma-glutamyl chain lengths in folates of *Bacillus subtilis*. *J Bacteriol* 124:1236-1239, 1975.

Farmer JL. An allele-specific suppressor of white-coral in *Drosophila melanogaster*. *Heredity* 39:297-303, 1977.

Hentschel WM, Farmer JL, and Andersen WR. Ethionine-resistant mutants of the filamentous blue-green alga *Plectonema boryanum*. *J Bacteriol* 133:1536-1539, 1978.

Farmer JL, Bradshaw WS, and Smith CS. Characteristics of delta-1-pyrroline-5-carboxylate reductase from *Drosophila melanogaster*. *Comp Biochem Physiol* 62:143-146, 1979.

Farmer JL. Conditional antifolate resistance in *Bacillus subtilis* *thyA*. *Antimicrobial Agents and Chemotherapy* 15:527-534, 1979.

Gates RLV, Farmer JL, Carter MW, and Bradshaw WS. Purification and kinetics of delta-1-pyrroline-5-carboxylate reductase from *Drosophila melanogaster*. *Insect Biochem* 13:39-43, 1983.

Lunday A, and Farmer JL. Tissue localization of esterase-5 in *Drosophila pseudoobscura*. *Biochem Genet* 21:453-463, 1983.

Farmer JL. Expression of *ey* in *Drosophila pseudoobscura*. *Drosoph Inf Serv* 60:105, 1983.

Farmer JL and Fairbanks DJ. Interaction of the *bw* and *w* loci in *D. melanogaster*. *Drosoph Inf Serv* 63:50-51, 1986.

Pliley MD, Farmer JL, and Jeffery DE. Improved in situ hybridization and detection of biotin-labeled *D. melanogaster* probes hybridized to *D. virilis* salivary gland chromosomes. *Drosoph Inf Serv* 66:170-171, 1987.

Jeffery DE, Farmer JL, and Pliley MD. Identification of Mullerian chromosomal elements in Hawaiian *Drosophila* by *in situ* hybridization. *Pacific Sci* 42:48-50, 1988.

Farmer JL, and Carter MW. Properties of partially purified allozymes of esterase-5 of *Drosophila pseudoobscura*. *Comp Biochem and Physiol* 93:451-458, 1989.

Whiting JH, Pliley MD, Farmer JL, and Jeffery DE. *In situ* hybridization analysis of chromosomal homologies in *Drosophila melanogaster* and *Drosophila virilis*. *Genetics* 122:99-109, 1989.

Su Y, Herrick K, Farmer JL, and Jeffery DE. *Zaprionus tubercalatus*: chromosome map and gene mapping by DNA in situ hybridization. *J Hered* 83:299-304, 1992.

Other Publications:

Farmer JL. Solutions Manual to Accompany Herskowitz: *Principles of Genetics*, Macmillan, NY, 1973

Farmer JL. (Guest editor of special issue on science and religion). *Dialogue: A Journal of Mormon Thought* 8:21-22, 1974.

Farmer JL. In the beginning: The origin of life. In Hess WM, Matheny ET, and Thayer DD (eds). *Science and Religion: Toward a More Useful Dialogue, Vol II. The Appearance of Man: Replenishment of the Earth*. Paladin House, Geneva, IL, pp 95-104, 1979.

Farmer JL, Bradshaw WS, and Johnson FB. The new biology and Mormon theology. *Dialogue* 12:71-75, 1979.

Farmer JL. Biological Effects of Nuclear War. *BYU Studies* 25:93-98, 1986.

CURRICULUM VITAE

Herbert H. Frost

Sources:

Searchable Ornithological Research Archives: <https://sora.unm.edu/node/102016>

UA 909, Herbert Frost, L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University, Provo, Utah 84602

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Born: January 22, 1917, New York City, NY

Died: February 15, 2001, Orem, UT

Education:

BA, Zoology, Brigham Young University, 1941

MS, Zoology, Brigham Young University, 1949

PhD, Conservation and Vertebrate Zoology, Cornell University, 1955

MA, Marine Biology, University of Oregon, 1959

Employment:

US Army during World War II, 1942

Faculty Member, Head, Department of Biology, Ricks College, Idaho, 1947-1955.

Faculty Member, Chairman, Division of Mathematics and Natural Science, Ricks College, Idaho, 1955-1960

Faculty Member, Department of Zoology and Entomology and Department of Zoology, 1960-1983

Teaching:

History and Philosophy of Biology

Ornithology

Zoogeography

Animal Biology

Vertebrate Zoology

Heredity

Wildlife Conservation

Elementary Human Anatomy

Academic and Professional Honors:

Comstock Scholarship, Cornell University, 1954
Elected to Phi Kappa Phi, 1955
Preferred Professor and Professor of the Month, Rich College, 1956
National Science Foundation Award (Board, travel, books, University of Oregon), 1959

Professional Memberships

Member and Treasurer, Phi Kappa Phi
Member, Wilson Ornithological Society
Member, Utah Academy of Sciences, Arts, and Letters
Member, Western Bird Banding Association

Service:

University Committees: Faculty Advisory Committee (1972-1975), BYU Alumni Board of Directors (1972-1975), *BYU Today* Advisory Committee (1973-1975), Collecting Permit Committee (1973-1978), Retirement Committee (1976-1979), Science Day Committee (1976-1979)

College Committees: College Curriculum Committee (1963-1965), College Building Committee (1963-1970), Curator of Oological Collections for Life Sciences Museum (1972-1983)

Department Committee: Graduate and Evaluations (1969-1982), Budget Committee (1970-1975), Assistant Chairman (1969-1990)

Community Service: Consultant Four Seasons Impact Study (1973), Consultant Open Space Planning (1973-1978), First President Mt. Timpanogos Chapter National Audubon Society (1970-1974), Member Board of Directors, Mt. Timpanogos Chapter National Audubon Society (1974-1978), Utah State Board of Education Environmental Advisory Committee (1973-1977), Vice Chairman and later Chairman Provo Canyon Planning Advisory Committee (1972-1973), Member Mountainland Association of Government's Comprehensive Planning Committee (1973-1978), Chairman Provo-Jordan River Parkway Technical Advisory Committee (1973-1982), Secretary Utah Trails Council (1978), Member Provo River Trails Subcommittee (1978)

Graduate Student Mentoring:

Bruce L. Barnett, MS, 1964
Ralph A. Brown, MS, 1968
K. David Kaneko, MS, 1972
Gary H. Richins, MS, 1973
Ronald M. Mitchell, MS, 1974
Randall S. Isham, MS, 1975
C. Leigh Gunnell, MS 1976
Emmett H. Alford, MS, 1978

Paul C. Burgoyne, PhD, 1980
Carolyn Vigos Zarnekee, MS, 1982

Research Activities:

Water Quality Studies on the Colorado River below Moab, Utah, 1961-1964 (with J.R Murphy). Funded by Texas Gulf Sulfur Company, \$50,000.

Impact study of Dimilin on Birds, Benthic Organisms, and Fish of Provo Bay, 1976 (with G. Booth).

Bibliography of Utah Ornithology and Breeding Birds of Utah. Funded by BYU Research Division (\$600).

Publications:

Frost HH and Murphy JR. Observations on birds along the Colorado in the vicinity of Moab, Utah. *Utah Academy of Science, Arts and Letters Proceedings* 42:180-185, 1965.

Taba SS, Murphy JR, and Frost HH. Notes on the fishes of the Colorado River near Moab, Utah. *Utah Academy of Science, Arts and Letters Proceedings* 42:280-283, 1965.

Frost HH. Dickcissel in Utah. *Wilson Bulletin* 78:126, 1966.

Smith DG, Wilson CR, and Frost HH. Fall nesting of barn owls in Utah. *Condor* 72:492, 1970.

Smith DG, Wilson CR, and Frost HH. The biology of the American Kestrel in central Utah. *Southwestern Nat.* 17:73-83, 1972.

Smith DG, Wilson CR, and Frost, HH. Seasonal food habits of Barn Owls in Utah. *Great Basin Nat.* 32:229-234, 1972.

Smith DG, Wilson CR, and Frost HH. History and ecology of a colony of barn owls in Utah. *Condor* 76:131-136, 1974.

Allen JB and Frost HH. Wilford Woodruff Sportsman. *Brigham Young University Studies* 15:113-117, 1974.

Hayward CL, Cottam C, Woodbury AM, and Frost HH. Birds of Utah. *Great Basin Naturalist Memoirs* 1:1-229, 1976.

Whitmore RC, Mosher JA, and Frost HH. Spring migrant mortality during unseasonable weather. *Auk* 94:778-781, 1977.

Pritchett, CL, Frost HH, and Tanner WW. Terrestrial Vertebrates in the Environs of Utah Lake (Birds). *Great Basin Naturalist Memoirs* 5:1-169, 1981.

White CM, Frost HH, Shirley DL, Webb GM, and Porter RD. Bird Distributional and Breeding Records for southeastern Idaho, Utah and Adjacent Regions. *Great Basin Naturalist* 43:717-727, 1983.

CURRICULUM VITAE

Kent A. Hatch

Sources:

Pub Med search: <http://www.ncbi.nlm.nih.gov/pubmed/?term=Hatch+KA+and+stable+isotopes>

Long Island University Website: <http://liu.edu/CWPost/Academics/Faculty/Faculty/H/Kent-A-Hatch?rn=Faculty+Profiles&ru=/CWPost/Academics/Faculty/Faculty>

<http://magazine.byu.edu/article/battling-fowl-breath/>

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Education:

BS, Brigham Young University, 1990

MS, University of Wisconsin, 1995

PhD, University of Wisconsin, 1996

Employment:

Fulbright Post-doctoral Fellowship through the United States–Israel Educational Foundation. Mitrani Department of Desert Ecology, Ben-Gurion University of the Negev, Midreshet Ben-Gurion 84990, Israel.

Faculty Member, Department of Zoology, Brigham Young University, 2001-2009

Faculty Member, Biology, Long Island University

Teaching:

Ecology

Biological Diversity

Publications:

Hatch KA, Pinshow B, Speakman JR. The Analysis of $^{13}\text{C}/^{12}\text{C}$ Ratios in Exhaled CO_2 : Its Advantages and Potential Application to Field Research to Infer Diet, Changes in Diet Over Time, and Substrate Metabolism in Birds. *Integr Comp Biol* 42:21-33, 2002.

Hatch KA, Pinshow B, Speakman JR. Carbon isotope ratios in exhaled CO₂ can be used to determine not just present, but also past diets in birds. *J Comp Physiol B* 172:263-268, 2002.

Podlesak DW, McWilliams SR, Hatch KA. Stable isotopes in breath, blood, feces and feathers can indicate intra-individual changes in the diet of migratory songbirds. *Oecologia* 142:501-10, 2005.

Hatch KA, Crawford MA, Kunz AW, Thomsen SR, Eggett DL, Nelson ST, Roeder BL. An objective means of diagnosing anorexia nervosa and bulimia nervosa using ¹⁵N/¹⁴N and ¹³C/¹²C ratios in hair. *Rapid Commun Mass Spectrom* 20(22):3367-73, 2006.

Castillo LP, Hatch KA. Fasting increases delta¹⁵N-values in the uric acid of *Anolis carolinensis* and *Uta stansburiana* as measured by nondestructive sampling. *Rapid Commun Mass Spectrom* 21:4125-418, 2007.

Hatch KA¹, Spangler DL, Backus EM, Balagna JT, Burns KS, Guzman BS, Hubbard MJ, Lindblad SL, Roeder BL, Ryther NE, Seawright MA, Tyau JN, Williams D. Towards a physiologically based diagnosis of anorexia nervosa and bulimia nervosa. *Expert Rev Mol Diagn* 7:845-857, 2007.

Chang YM, Hatch KA, Ding TS, Eggett DL, Yuan HW, Roeder BL. Using stable isotopes to unravel and predict the origins of great cormorants (*Phalacrocorax carbo sinensis*) overwintering at Kinmen. Chang YM, Hatch KA, Ding TS, Eggett DL, Yuan HW, Roeder BL. *Rapid Commun Mass Spectrom*. 22:1235-1244, 2008.

Chan WP, Yuan HW, Huang CY, Wang CH, Lin SD, Lo YC, Huang BW, Hatch KA, Shiu HJ, You CF, Chang YM, Shen SF. Regional scale high resolution $\delta^{18}\text{O}$ prediction in precipitation using MODIS EVI. *PLoS One* 7:e45496, 2012.

Welch KC Jr, Péronnet F, Hatch KA, Voigt CC, McCue MD. Carbon stable-isotope tracking in breath for comparative studies of fuel use. *Ann N Y Acad Sci* 1365:15-32, 2016.

CURRICULUM VITAE

Charles Lynn Hayward

Source:

Frost HH, Tanner WW. Charles Lynn Hayward. *Great Basin Nat* 59:201-203, 1999.

BYU Catalogs and Class schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: 10 July 1903, Paris, Idaho

Death: 30 August 1998, Provo, Utah

Education:

BS, Zoology and Entomology, Brigham Young University, 1927

MS, Entomology, Brigham Young University, 1931

PhD, Ecology, University of Illinois, 1941

Employment:

Biology Teacher, Fielding High School, Idaho, 1927-1931

Faculty Member, Department of Zoology and Entomology, 1931-1972

Administration and Service:

Member, Admission and Records Committee, Brigham Young University (7 Yrs)

Member, Curriculum Committee, Brigham Young University (1 Yr)

Chair, Premedical and Predental Committee (Many Years)

Chair, Department of Zoology and Entomology, 1958-1962

Curator, Life Science Museum (5 yrs)

Teaching:

Genetics

General Zoology

Invertebrate Zoology

Vertebrate Zoology

Elementary Entomology

Insect Morphology

Insect Classification

Physiology
Evolution and Genetics
Comparative Anatomy
Ornithology
Advanced Study of the Hymenoptera
Human Physiology
Human Physiology Laboratory
Nature Study for Teachers
Field Zoology
Animal Ecology
Histological Organography and Technique
Parasitology
Histology
Histological Technique
Mammalogy
Ornithology
Research in Mammalian Anatomy
Special Problems in Ornithology
Special Problems in Ornithology
Research in Mammalogy and Ornithology
Advanced Ecology

Publications:

Hayward CL. Notes on Utah Vespidae. *Entomol News* 41:204-205;222-226, 1930.

Hayward CL. A preliminary list of the birds of the sub-alpine and alpine zones of the Uinta Mountains. *Utah Acad Sci* 8:151-152, 1931.

Hayward CL. The paper wasps of Utah including a description of a new variety of *Polistes Canadensis* Linn. *Utah Acad Sci* 9:85-101, 1932.

Hayward CL. Notes on the taxonomy and description of the wasp genus *Polistes* in the Intermountain West, with description of two new varieties. *Utah Acad Sci* 10:139-147, 1933.

Hayward CL. Distribution of *Polistes* in Canada, with notes on the genus (*Hymenop.*) *Canadian Entomol* 65:126-128, 1933.

Hayward CL. Important heron rookeries in southeastern Idaho. *Auk* 51:39-41, 1934.

Hayward CL (with Tanner VM). A biological study of the La Sal Mountains. *Utah Acad Sci* 11:209-235, 1934.

Hayward CL. The breeding status and migration of the Caspian Tern in Utah. *Condor* 37:140-144, 1935.

Hayward CL. Observations on some breeding birds of Mount Timpanogos, Utah. *Wilson Bull* 67:278-284, 1935.

Hayward CL. A study of the winter bird life in Bear Lake and Utah Lake valleys. *Wilson Bull* 67:278-284, 1935.

Hayward CL. Some observations on shore birds at Utah Lake during the summer of 1936. *Utah Acad Sci* 13:191-193, 1936.

Hayward CL. A bibliography of Utah mammalogy including references to names and type localities applied to Utah mammals. *Utah Acad Sci* 13:121-146, 1936.

Hayward CL. A record of *Vespa crabro* Linnaeus from North Dakota. *Entomol News* 48:120, 1937.

Hayward CL. Some new and unusual bird records from Utah. *Wilson Bull* 69:303-305, 1937.

Hayward CL. Notes of the distribution of nighthawks in Utah. *Great Basin Nat* 1:93-96, 1940.

Hayward CL. Feeding habits of the red squirrel. *J Mammal* 21:220, 1940.

Hayward CL. Notes on the nesting habits of some mountain dwelling birds in Utah. *Great Basin Nat* 2:1-8, 1941.

Hayward CL (with Hall ER). Three new mammals (*Microtus* and *Ochotona*) from Utah. *Great Basin Nat* 2:105-108, 1941.

Hayward CL. A bibliography of Utah mammalogy: including references to names and type localities (first supplement). *Great Basin Nat* 2:125-136, 1941.

Hayward CL. Biotic communities of Mt. Timpanogos and western Uinta Mountains, Utah. An abstract of a thesis. 11 pp, 1942.

Hayward CL. Notes on the status of the Red Crossbill in Utah. *Auk* 60:276-277, 1943.

Hayward CL. Additional records of uncommon birds in Utah. *Condor* 46:205, 1944.

Hayward CL. Biotic communities of the southern Wasatch and Uinta Mountains, Utah. *Great Basin Nat* 6:1-124, 1945.

Hayward CL. Occurrence of *Perognathus fasciatus* in Utah. *J Mammal* 37:451, 1945.

Hayward CL. Biotic communities of the Wasatch chaparral, Utah. *Ecological Monographs*. 336 p, 1948.

Hayward CL. The short-tailed weasel in Utah and Colorado. *J Mammal* 30:336, 1949.

Hayward CL. Nesting behavior of Nuttall's Poor-will. *Wilson Bull* 61:188, 1949.

- Hayward CL (with several other authors). Nature sanctuaries in the United States and Canada. *Living Wilderness* 36:46, 1951.
- Hayward CL. Alpine biotic communities of the Uinta Mountains, Utah. *Ecological Monographs* 22:93-120, 1952.
- Hayward CL. Pelage color changes in *Perognathus longimembris*. *J Mammal* 37:451-452, 1956.
- Hayward CL. Additional notes on the Purple Martin in Utah. *Condor* 60:406, 1958.
- Hayward CL (with Killpack ML). Distribution and variation of the Utah population of the Great Basin pocket mouse. *Great Basin Nat* 18:26-30, 1958.
- Hayward CL (with Killpack ML). New and unusual records of birds from the Uinta Basin, Utah. *Great Basin Nat* 18:23-25, 1958.
- Hayward CL (with Beck DE, Tanner WW). Zoology of the Upper Colorado River Basin. I. The Biotic Communities. *BYU Sci Bull, Biol Ser* 1:74, 1958.
- Hayward CL (with Killpack ML, Richards GL). Birds of the Nevada Test Site. *BYU Sci Bull, Biol Ser* 3:1-27, 1963.
- Hayward CL (with Jorgensen C). Mammals of the Nevada Test Site. *BYU Sci Bull, Biol Ser* 6:1-81, 1965.
- Hayward CL. New and unusual bird records from Utah. *Condor* 68:305-306, 1966.
- Hayward CL. Birds of the Upper Colorado River Basin. *BYU Sci Bull, Biol Ser* 9:1-64, 1967.
- Hayward CL (with Stones RC). Natural history of the desert woodrat, *Neotoma lepida*. *Am Midland Nat* 80:458-476, 1968.
- Hayward CL. Vasco M. Tanner. *Great Basin Nat* 30:181-189, 1966.
- Hayward CL (with Cottam C, Woodbury AM, Frost HH). Birds of Utah. *Great Basin Nat Memoirs I*. Brigham Young University, Provo, Utah, 229 p, 1976.
- Hayward CL. The High Uintas. Monte L. Bean Life Science Museum, Brigham Young University, Provo, Utah, 101 p, 1983.

CURRICULUM VITAE

Gerald L. Hayward

Sources:

<http://www.byhigh.org/cgi-bin/ez-directory/dispAssoc.cgi?H&X329586&300>

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Education:

BS, Brigham Young University, 1963

MD, University of Utah, 1967

Anesthesiology Residency, Stanford University, 1973-1975

Employment:

Faculty Member, Brigham Young University, 1970-1976

Founder and Director, Provo Surgical Center, 1976

Teaching:

Elementary Human Physiology

Elementary Human Anatomy

RICHARD A. HECKMANN

(2016)

1. Name: Richard A. Heckmann Academic Rank: Professor Department: Zoology
 Wife: Karen Children: 5 (Lisa, Nancy, Amy, Adam, Camille)

2. Educational History:

<u>Name of Institution</u>	<u>Years</u>	<u>Major</u>	<u>Degree</u>
Utah State University, Logan, UT	1950-54	Zoology	B.S.
Utah State University, Logan, UT	1956-58	Zoology	M.S.
University of California, Davis, CA	1958-60	Zoology	
University of Pacific, Stockton, CA	Summer 1959	Marine Biol.	
University of Hawaii, HI	Summers 1960-61	Marine Biol.	
National Science Found. Inst.			
Univ. of Washington, Seattle, WA	Summer 1963	Radiation Biol.	
University of California, Berkeley, CA	Summer 1963	Cell Life Mech.	
National Science Found. Inst.			
Univ. of California, Berkeley, CA	Summer 1966	Protozoology	
Montana State University, Bozeman, MT	1967-1970	Zoology	Ph.D.
Imperial College, Ascot Field Station (England), Weymouth and Aberdeen)	1970-1971	Microsporidians	
National Fish Disease Laboratories(England)	1976	Fish Diseases	
University of Utah School of Medicine	1985-86	Pathology	

3. Professional Positions: (most recent first)

<u>Employer</u>	<u>Dates</u>	<u>Position</u>
Brigham Young University	2004-present	Professor Emeritus
Brigham Young University	1972 - 2004	Professor
Brigham Young University,	1989 - 2004	Adjunct Professor of Religion
California State University, Fresno	1970- 1972	Assistant Professor
California State University, Fresno	1970	Lecturer
Fresno City College	1970-1972	Instructor (Biology)
Montana State University	1968-1970	Teaching Assistant
Contra Costa College	1962-67	Head- Botany Department
University of California	1959-1961	Teaching Assistant
University of California,	1959	Research Assistant.
Utah State University	1957	Director- College Arboretum

4. Professional Organizations and Honor Societies:

American Society of Protozoologists
 American Society of Parasitologists: Rocky Mountain Conference of Parasitologists
 American Fisheries Society (Fish Health Section and Fish Culture Section) (Bonneville Chapter, AFS)
 Helminthological Society of Washington
 Fish Health Section: Asian Fisheries Society
 Utah Academy of Sciences
 Phi Kappa Phi (Life Member and Emeritus Status)

5. A. Honors and Awards and Dates Received:

Carl Raymond Grey Scholarship, 1950.
 Pauley Research Fellowship Summers of 1960, 1961. (Hawaii- Sea Urchin Ciliates)
 National Science Foundation Research Grants 1971, 1972.

Faculty Research Awards 1972 to 2001

Certified as Fisheries Scientist by American Fisheries Society, 1971.

Member American Institute of Fishery Research Biologists, 1973.

Moscow, Russia. Institute of Helminthology. Presented the Skryabin Medal for Parasitology. 1989.

Entered in Who's Who of American Inventors for 1990, 1992, 1995.

Entered Who's Who in the West, International Biographical Sketches, 1989-2001

Elected Life Member of Rocky Mountain Conference of Parasitologists, 1993.

Featured in the Vol. 4 No. 1 issue of the FHS Newsletter Asian Fisheries Society, page 9.

Fisheries Scientist's of Note Convened a Round Table on Fish Parasites at the Eighth International Congress of Parasitology and gave the opening talk. Izmir, Turkey; Oct. 10-14 1994. Ninety nations sent representatives. I was asked to organize the symposium on fish parasites.

Received Award of Merit, 1987, Boy Scouts of America

Received Council Leadership Medal, 1987, Utah National Parks Council, Boy Scouts of America

Received National Presidents and NESA Scoutmaster Award of Merit, 1988, Boy Scouts of America

Received Silver Beaver Award, Boy Scouts of America, National Parks Council 1989

Asked to Organize a series of Articles for the "Aquaculture" Magazine on Fish Diseases. 1994. (Articles have been completed)

Received the Ain Shams Medal for Science from the Department of Zoology Faculty. Ain Shams University, Cairo, Egypt. May 1996.

Elected member and Editorial Board; Egyptian Society for Development of Fish Resources and Human Health. May 1996.

Reader for Thesis, Cairo University, Cairo, Egypt, Faculty of Veterinary Science.

Reader for Thesis, Al Azhar University, Cairo, Egypt.

Reviewer for Qatar University Science Journal, State of Qatar.

Fellow: Kennedy Center for International Studies. 1998 - present.

Senior Fulbright Scholar 2000-2001

National Academy of Science (USA-USSR) Research Fellowship for USSR (Soviet Union), 6 months, 1989.

Honored member of Strathmoore's Who's Who in America. 2002, 2003

College Professorship: College of Biology and Agriculture, Brigham Young University (2001-2003)

Senior Fulbright Scholar: Research/Teaching Egypt Jan. 13, 2003 to June 12, 2003.

Thesis Examiner (PhD Level), Ain Shams University (Egypt), University of Karachi and University of Sindh (Pakistan), and University of Qatar (Qatar).

2004 – Present: Panel of Experts. Selection Committee. University of Karachi, Karachi Pakistan

B. Teaching and Academic Awards

National Science Foundation Fellowships Summers, 1963, 1966

National Science Foundation Traineeship 1968, 1970

Outstanding Educators of America, 1972

Brigham Young University, Professor of the Month, March 1974

Honored by Alpha Chapter Pre-Dental Society, 1974

Chairman, WICHE selection committee (UTAH) for Dental students, 1975

Outstanding Professor, Zoology Department, Selected by Senior Students 1987

Nominated to Phi Kappa Phi 1987; Life Member 2003

Visiting Professor, University of Altiplano, Puno, Peru—taught graduate course (Fish Pathology) 1988

Selected as a Visiting Professor, USSR and Poland (6 months, 1989) National Academics of Science USA and USSR

Zoology Department, BYU, Outstanding Achievement and Service Award 1989

Recognized by Farmer-To-Farmer Program (USAID) for Contributions to rural development in Bolivia and Peru 1988, 1989

Outstanding Professor, Zoology Department, Selected by Senior Students 1992

Who's Who Environmental Registry, 1992

Nominee for Maeser Teaching Award for the College of Biology and Agriculture 1993 and 1994

Selected for Who's Who in American Education 1995, 2003

Distinguished Alumni Professorship for Brigham Young University. A three-year award. 1995

Advisory Board, International Biographical Centre, Cambridge, England
 Associate Editor, Great Basin Naturalist: Chairman Advisory Board, Great Basin Naturalist
 Listed in 5th Edition, "Who's Who Among American Teachers, 1998, 2003, and 2004"; nominated by
 former students who currently are listed in Who's Who Among American High School Students
 Editorial Board: Research Journal of Animal and Veterinary Science 2001 to date (Pakistan).
 Editorial Board: Research Journal of Agriculture and Biological Science 2001 to date (Pakistan).
 Technical Consultant: Proceedings of Parasitology 1998 to date (Pakistan).
 Thesis Reviewer: University of Karachi and Jinnah University for Women (Pakistan).
 Four of the Top Twenty published articles listed in "BioMedUpdater" for 2013. Domain of Articles
 23064812. Listed Articles;

Amin OM, Heckmann RA, Halajian A, El-Naggar AM, Tavakol S: **The description and histopathology of *Leptorhynchoides polycristatus* n. sp. (Acanthocephala: Rhadinorhynchidae) from sturgeons, *Acipenser* spp. (Actinopterygii: Acipenseridae) in the Caspian Sea, Iran, with emendation of the generic diagnosis.** *Parasitol Res*; 2013 Nov;112(11):3873-82

Heckmann RA, Amin OM, Halajian A, El-Naggar AM: **The morphology and histopathology of *Nephridiacanthus major* (Acanthocephala: Oligacanthorhynchidae) from hedgehogs in Iran.** *Parasitol Res*; 2013 Feb; 112 (2):543-8

Amin OM, Gholami Z, Akhlaghi M, Heckmann RA: **The description and host-parasite relationships of a new quadrigyrid species (Acanthocephala) from the Persian tooth-carp, *Aphanius farsicus* (Actinopterygii: Cyprinodontidae) in Iran.** *J Parasitol*; 2013 Apr; 99(2):257-63

Amin OM, Evans P, Heckmann RA, El-Naggar AM: **The description of *Mediorhynchus africanus* n. sp. (Acanthocephala: Gigantorhynchidae) from galliform birds in Africa.** *Parasitol Res*; 2013 Aug;112 (8):2897-906

C. Guest Lectures, Seminars, Training Courses:

San Francisco, California. American Dental Association. Invited Paper. "Vocational Training for Pre-Dental Students." 1975.

Imperial College, London, England: Fish Disease Research, Current Concepts. 1976.

Aberdeen National Fish Disease Laboratory, Scotland: Techniques for Preventing Ichthyophthiriasis in Salmonids. 1976.

Weymouth National Fish Disease Laboratory, England: Diplostomatosis in Salmonid Fishes. 1976.

Inupit Eskimo Community, Barrow Alaska. Series of Lectures on Aquaculture and Fish Production sponsored by CETA. 1978.

Tel Aviv, Israel: Speaker 11th International Congress on Diseases of Cattle. "Scanning electron Microscopy and x-ray microanalysis (EDAX) of milking machine components relative to mastitis control 1980 (same topic given at another international meeting held in New Zealand 1981.)

Tihany, Hungary: Second International Symposium for Ichthyoparasitology, "Actual Problems in Fish Parasitology." Gave two invited papers ("The efficacy of praziquantel and ivermectin against selected helminths of fishes" and "Asian fish tapeworm and other parasites of endangered fishes endemic to the Virgin River, UT, AZ, NV") and convened one session of the symposium. Sept. 23 to Oct. 3, 1987.

Salt Lake City, Utah: American Fisheries Society (Western Division). Invited Paper: "Parasites of endangered fish species endemic to the Virgin River, Utah, Nevada, and Arizona." 1987.

University of Altiplano, Peru taught 5 ½ week course "Patologia de Peces" (Ichthyopathology). May 12 to June 19, 1988. First North American Professor to be invited by the University to conduct a graduate level course.

Brigham Young University: Guest lecturer for the 2nd International Seminar on Small-Scale Agriculture (Fisheries). Sponsored by the "Ezra Taft Benson Institute for Food and Agriculture". June 27 to July 7, 1988.

Vancouver Canada, Presented invited paper at the 1st International Fish Health Conference FHS/AFS at Vancouver B.C., Canada (Parasites of Endangered Fish Species, Number 11). Also convenor and -co-moderator for the Metazoan Infection section, same conference. July 1988.

Russia, Moldavia, Kazakhstan, Poland: Seminars and Cooperative Research, USSR (Moscow, Leningrad, Kishinev, Alma Ata) and Poland (Gdansk). May-Nov. 1989. Representing U.S. National Academy of Science. Lectures given at Moscow State University, Zoological Institute (St. Petersburg), Zoological Institute (Alma Ata, Kazakhstan), Fisheries Institute, (Kishinev, Moldavia) and University of Gdansk (Gdansk, Poland). Conducted training sessions for Professors and Graduate Students at all locations. 1989.

Brigham Young University: Seminars 1990-2002 on career options for Zoology majors given at BYU sponsored by the Women in Science Center. One each year, 1990-2002.

Trinidad, Bolivia: Guest lecturer: University of Trinidad, Trinidad, Bolivia. Topic: "Parasites Introduced into the Aquatic Habitat with Non-Native Fish Plants." 350 faculty and students in attendance. Informal reception after lecture. Conducted a formal two-hour training session to key faculty on examining fish for parasites. June 4, 1993.

Riberalto, Bolivia: Guest Lecturer: University of Riberalto, Riberalto, Bolivia. Held at a social club in the city. Topic: "Two unique fish parasites introduced into native fish populations." 150 faculty, townspeople, students and reporters in attendance. Question session and informal reception after the lecture. Conducted a formal three-hour training session to key faculty and staff on examining fish for parasites. June 12, 1993.

Brigham Young University: Guest lectures for Zoology 457: Wildlife and Fisheries Management. Topic, Aquaculture, problems and principles. 1975-2002.

Wendover, Utah: Panel Discussion. Invited to participate and give opening remarks for panel, "Aquaculture Uses". Bonneville Chapter, American Fisheries Society Annual Meeting (Solving and Managing Conflicting Uses of Aquatic Resources). My part, recent parasite and disease problems facing aquaculture. 1994.

Bozeman, Montana: Guest Speaker: Montana State University: Whirling Disease of Trout in the Rocky Mountain Regions. Feb. 7, 1995. and Guest Seminar: Montana State University: Impact of *Myxobolus cerebralis* (Myxosporidan) on Salmonids. Feb 7, 1995.

Cairo, Egypt: Guest lecturer at Annual Meeting of the Egyptian Aquaculture Association at Cairo University. Topic: "Whirling Disease in the Western United States, History and Impact". May 6, 1996.

Cairo, Egypt: Seminar to faculty and students at Cairo University, School of Veterinary Medicine. Topic: "Diplostomatosis in fishes from North and South America, Recent Research Techniques". Two hundred in attendance. May 1996.

Cairo, Egypt: Seminar to faculty, staff and students at Ain Shams University, School of Science, Faculty of Science. "Introduced fish parasites and their hosts, damage to Endangered Fish Species." 65 in attendance. May 1996.

Albuquerque, New Mexico: Invited Speaker, IBA Corporation Meeting, Region 6. "An evaluation of commercially available powdered teat dips." November 14, 1997.

Hanoi, Vietnam: Presented six seminars at the Institute of Ecology and Biological Resources on fish disease and aquaculture topics. Conducted a training course for the faculty and staff for the Department of Parasitology at the same institute. Established cooperative research with the parasitology group. Taught English class for high school and college students in the evening. 1998.

Haikou, Hainan, China: Presented a seminar on recent advances in fish disease research to the faculty of Science, Hainan University. Toured fish farms (turtle and shrimp production) and evaluated their aquaculture facilities. 1998.

Utah State University, Logan, Utah: Invited speaker, 54th International Northwestern conference on Diseases in Nature Communicable to Man. August 15-18, 1999: Fish and Human Parasites in Vietnam.

3 Feb. 2003: World Fisheries Center, Abbassa, Egypt. Gave a 2 hour seminar "Fish Diseases and Fish Parasites in the World". Toured 1500 acre fish research facility after talk.

23 Feb. 2003: Egyptian Society of Zoologists, Helwan University, Cairo Egypt. Gave the plenary (opening) address; "Fish Diseases in a Shrinking World". Chaired scientific sessions.

Mar. 16, 17, 2003. Assiat University: Assiut, Egypt. Seminar "Fish Diseases" in Egypt. Toured facilities and talked to faculty.

May 3, 2003. Ain Shams University, Cairo, Egypt Seminar "Zoonotic Diseases from a Fish Source".

May 11, 12, 2003. Workshop: World Fisheries Center (ICLARM) Expert Consultation on Fish Health Research in Egypt. Abbassa, Abou Hammad, Sharkia, Egypt. Gave Talk. "Emerging Fish Disease Problems: New Research Techniques". Also group leader for 2 discussion groups, pertaining to future fish diseases.

March 24, 2003. Cairo University, Cairo Egypt. I was suppose to participate in a workshop. "Marine Aquaculture, Advances & Problems". War cancelled workshop.

Mar. 31, 2003. Tonta University, Tonta, Egypt. I was scheduled to give a talk. "Recent advances in the control of Fish Nematodes". War cancelled talk.

Heckmann, R.A. 2004. Gerald Schmidt Guest Lecture: Parasites and a Shrinking World. Ectoparasites of Egyptian mummies from a cemetery at Fayyum, Egypt. 35th Annual Meeting, Rocky Mountain Conference of Parasitologists Casper, Wyoming Apr. 29-May 1.

Mentor Awards: Isaac and Lucas Bingham: Medical Student Research Program (Penn State Research Program) 2004 Sponsored Research "Size and Density Variation in Microtriches from *Bothriocephalus* species found in *Cyprinus carpio* from Lake Powell, Utah" sponsors Dr. Richard Heckmann and Dr. John Gardner. 2004

Participant: Dental Admission Test Item (DAT) Development Workshop. ADA Headquarters Chicago, Illinois. September 19-21, 2004.

Writer: Dental Aptitude Test (DAT) and Medical Aptitude Test (MCAT) Biology Parts. 5 years.

D. Current Research Associates (working on projects involved with my laboratory):

Dr. Jerzy Rockicki: PhD. Invertebrate Zoology Department, University of Gdansk. Gdansk, Poland. (Fish Nematodes).

Dr. Arne Dahlo: PhD. University of Trondheim, Norway (Enteric Bacteria of Carp and Marine Fishes). 1993 and 1994-95.

Angela Teresa Silva e Souza, Biology Department, University of Londrina, Londrina Brazil (Fish Parasites). 1994 to present.

Dr. Eric Burdett: DVM, PhD., BYU. Intracranial Amoeba of Fishes and mites of laboratory animals. 1994 to present.

Dr. Sergei Spirigonov, Helminthology Laboratory, Academy of Science, Moscow, Russia, TEM Nematodes. 1994 to present.

Dr. Rudolfo Mesa, University of High Plains, Puno, Peru (Fish Parasites). 1989 to present.

Dr. Pham Van Luc, Institute of Ecology and Bioresources. Hanoi Vietnam (Fish Parasites). 1996 to present.

Dr. Cemal Orguz, Fisheries Faculty, Izmir, Turkey (Fish Parasites). 1996 to present.

Dr. Khalid Eldeen: Zagzig University: Cairo, Egypt (Water Pollution, Fish Parasites). 1996 to present.

Dr. Rafaat El Fayoumi: Mansoura University, Mansoura, Egypt (Water Pollution, Fish Parasites). 1997 to present.

Nguyen Van Ha: Institute of Ecology and Biological Resources, IEBR, Hanoi, Vietnam (Fish and Human Parasites.) 1998 to Present.

Dr. Ameen Ashour: Ain Shams University, Cairo, Egypt (Electron Microscopy, Fish Parasites). 1997 to present.

Dr. Ola Samak: Damietta University, Damietta, Egypt (EM, Fish Parasites). 1998 to present.

Dr. Bilquees Mujib: Bagai Medical University: Department of Parasitology: Karachi - 74600 Pakistan. (Fish and Human Parasites, Journal Articles). 1999 to present.

Dr. Atif El Negar: Ain Shame University, Cairo, Egypt (Fish Parasites) 2003 to present.

6. Name and dates of committee and other professional citizenship activities:

Department: Scholarship Committee
 Faculty Search Committee
 PDC Committee

University: Chair: Western North American Naturalist Advisory Committee

State, Regional, National, and International
 Nominating Committee 1974, Rocky Conference Parasitologists Committee Member, Auditing and
 Balloting,
 Fish Health Section and Fish Culture Section, AFS. Chairman, Membership and Balloting Committee,
 Fish Culture Section, American Fisheries, 1976
 Chairman, Professional Standards Committee, Fish Health Section, American Fisheries Society, 1976,
 1977, 1978
 American Society of Pre-Dental Students, National Advisor
 Publication Committee, Fish Health News, Fish Health Section, American Fisheries Society
 Member, Endangered Species Committee, American Fisheries Society.
 Secretary-Treasurer of the Rocky Mountain Conference of Parasitologists, 1979-current date
 Elected President of the Rocky Mountain Conference of Parasitologist, American Society of
 Parasitologists for 1986-87.
 WICHE Selection Committee (State Level)

7. Thesis Dissertation Evaluator for Jinnah University for Women (Karachi, Pakistan), Univeristyo f
 Karachi (Pakistan), Ain Shams University (Cairo, Egypt)

1. Teaching assignments: (last five years)

Teacher/Course Evaluations: Summer/Fall 2001

Class	Number Enrolled	Evaluation of Course (0 to 7)	Evaluation of Professor (0 to 7)
Zoology 380	13	6.9	7.0
Histology (Summer)			
Zoology 380	39	6.5	6.7
Histology (Fall sec. 1)			
Zoology 380	14	6.5	6.8
Histology (Fall sec. 400)			

A. Courses taught: BYU

Biology 100: Principles of Biology

*Biology 398R: Biology Teaching Seminar (for Histology Lab Assistants)

Honors Biology 115: Principles of Biology

*Religion 121, 122: Book of Mormon. (I developed a series of checklists for the students: Names,
 Places, Concepts, Events, for each chapter in the Book of Mormon).

Zoology 115: Introduction to Zoology

Zoology 229: Preview Into Dentistry

Zoology 260: Human Anatomy, Elementary

Zoology 317: Medical Parasitology

Zoology 329: Dental School Preparation

*Zoology 380: Histology (I wrote a 200 page syllabus which is used by the students instead of a
 textbook. Reduces book cost for students. BYU has more students enrolled in Zool. 380 than any
 University in the country offering Histology. We are developing a CD Rom system for the Lab to help
 the students).

*Zoology 399R: Cooperative Education for Zoology Students.

*Zoology 417: Diseases of Fish (I wrote a short syllabus and outline for the class).

*Zoology 418: Aquaculture (Outline developed for course, Team taught).

Zoology 429: Clinical Observation for Pre-Dental Students. (I was the first person in the country to develop this course, now used at many Universities. I've published articles in scientific journals pertaining to this class).

*Zoology 449R: Undergraduate Research

Zoology 443: Ichthyology

Zoology 549R: Advanced Topics, Histology Techniques

Zoology 526: Cell Biology

<u>COURSE</u>	<u>SEMESTER</u>	<u># OF STUDENTS</u>	<u>COURSE TEACHER</u>	
Zool 380	Summer 2001	10	7.0	7.0
Zool 380	Fall 2000	22	6.2	6.6
Zool 380	Winter 2000	79		
Biol 398R	"	10		
Zool 449R	"	8		
Zool 549R	"	1		
Zool 799R	"	1		
Zool 399R	Spring 2000	5		
Zool 380	Summer 2000	40		
Zool 399R	"	1		
Biol 398R		1		
Rel 122	Fall 2000	30		
Zool 380	"	35		
Biol 398R	"	2		
Zool 399R	"	1		
Zool 449R	"	1		
Zool 549R	"	1		

Class Evaluations: My course and teacher evaluations range from 6.4 to 6.8. One semester I received a 7.0 for instructor.

B. Undergraduate research students mentored
Average 8-10 student s each semester in my lab.

C. Graduate student committees

Ahmed Abdeltawab (PhD)* 2002

*Degree given at Al Azhar University, Egypt

Atif El Nigar (PhD)* 2003

*Degree given at Ain Shams University, Egypt

Khalid El Deea (PhD)* 2001

*Degree given at Zagazig University, Egypt

Dallin Young M.S. Chair

Refaat ElFayoumi (PhD)* Complete Studies year 2000

* Degree will be awarded by Mansoura University, Egypt

Mellisa Ann Tillack M.S. Member

Reports, Books, Lab Manuals

- Heckmann, R.A. 1966. Laboratory Manual for Biology: Part I. Contra Costa College Press. 97 pages.
- Heckmann, R.A. 1966. Laboratory Manual for Biology: Part II. Contra Costa College Press. 80 pages.
- Clark, G. and R. A. Heckmann. 1974. Atlas of Animal Parasites. BYU Press. 106 pp.
- Hilton, S. and R. A. Heckmann. 1974. Some Fish Parasites (16 mm film shown at three scientific meetings).
- Heckmann, R. A. 1977. Glossary of Fish Health Terms: Fish Health Section American Fisheries Society. Edited by George Post. I reviewed the Glossary and was listed as a contributor for the section on Parasites.
- Noorlander, D.O., and R. A. Heckmann. 1979. IBA's S-500 Silicone Inflation. 21 pp.
- Porter, P. 1979. Rubber harbors mastitis bacteria, as revealed in study using scanning electron microscope. Dairymen's Digest, July: 6-8. Article used my scanning electron micrographs. Cited in article.
- Eichholz, J. P. 1980. Extraccion mecanica de leche y sanidad mamaria. Instituto de produccion animal. Valdivia Chili. My SEM micrographs on pages 101-114.
- Warnick, L. 1980. Not what they're cracked up to be. Dairy Herd Management. 66-68. My SEM pictures published in this article.
- Heckmann, R. A. and L. Merritt. 1981. Preface (co-editors) Utah Lake Monograph. Great Basin Naturalist Memoirs 5: 169 pp.
- Noorlander, D. O., R. A. Heckmann, and K. E. Kohkonen. Cited by Materials Engineering Journal 94(5):37 for one of the top twenty inventions for material engineering during 1981.
- Noorlander, D.O. and R. A. Heckmann. 1981. Nueva Tecnologia en el control de la mastitis y function y disenio de succion adoras de leche relacionados con la mastitis. QDAS Jornadas Veterinaria:de Atlantida, Sociedad de Medicina Veterenaria del Uruguay 1-11.
- Mickelsen, R. W., R. C. Infanger and R. A. Heckman. Patent Awarded 4,337,727 (15 claims) "Modular Cage System for Underwater Use" Official Patent Gazette July 6, 1982: 70.
- Heckmann, R. A. 1983. Eye Fluke Disease, Diplostomosis, of Fishes from the Upper Salmon River, Idaho. Proceedings Bonneville Chapt. AFS. 174-198.
- Heckmann, R. A. 1983. Parasitological Study of the Bowhead Whale, *Balaena mysticetus*. In: Tissue Structural Studies and Other Investigations on the Biology of Endangered Whales in the Beaufort Sea. Vol. I. 275-304.
- Clark, G. W., R. A. Heckmann and L. Jensen. 1984. An Atlas of Animal Parasites (2nd Edition). BYU Press. 202 pp.
- Heckmann, R. A. 1984. Efficacy of three pharmaceuticals against bacteria causing mastitis, a fine structure study. Nooraid Chemical Corporation: Orem, Utah. 26 pp.
- Heckmann, R.A. 1984. Final Report and Recommendations--Fish Eye Fluke, Upper Salmon River Hatchery Site. Submitted to State of Idaho, Idaho Fish and Game, Boise, Idaho. 181 pages.

- Heckmann, R. A. 1984. Final Report. Evaluation of the fish eye fluke, *Diplostomum spathaceum*, for the Lochsa, Selway, and Clearwater Drainages (Idaho). Submitted to State of Idaho, Idaho Fish and Game, Boise, Idaho 72 pp.
- Heckmann, R. A. 1985. Continuation of studies on the fish eye fluke (*Diplostomum spathaceum*) and other parasites of fish for the hatchery site, upper Salmon River, Stanley, Idaho. Report submitted to Idaho Fish and Game Department (Steve Huffaker). 15 pages.
- Heckmann, R. A. 1985. Control and management of the fish eye fluke (*Diplostomum spathaceum*) for the Sawtooth National Fish Hatchery. Training manual prepared and used by full time staff at the hatchery. 35 pages.
- Heckmann, R. A. 1985. Fine structure (SEM) of the nasal mucosa from patients treated with Vancenase or Nasalide. Report submitted to Schering-Plough Corporation (Dr. Saul Greenstein). 42 pages.
- Heckmann, R. A. 1985. Identification and treatment of parasites from cutthroat trout (*Salmo clarki*) and longnose suckers (*Catostomus catostomus*), Yellowstone Lake, Yellowstone National Park. Report submitted to National Park Service, Yellowstone (John Varley). 24 pages.
- Heckmann, R. A. 1985. Initial trials for chemotherapy of largemouth bass (*Micropterus salmoides*) infected with tapeworms and metacercariae using varying levels of Praziquantel (Droncit). Report submitted to World Record Bass (Glen Lau, President). 15 pages.
- Heckmann, R. A., P. D. Greger, and J. E. Deacon. 1985. Parasites of the woundfin minnow, *Plagopterus argentissimus*, from the Virgin River, Utah. Report submitted to Utah Division of Wildlife Resources. 89 pages.
- Noorlander, D. O., R. A. Heckmann, and K. E. Kohkonen, 1985. Mastitis and the Dairy Industry, Potential Solutions for a Worldwide Problem. Report submitted to Benson Institute (BYU) for their newsletter. 12 pages.
- Heckmann, R. A. 1986. The synergism of a stock comfrey herbal extract fortified with ascorbic acid rated for bacteriocidal properties and compared with other pharmaceuticals. 15 pp. Report submitted to Nooraid Corporation.
- Heckmann, R. A. 1986. The synergism of comfrey herbal extracts with varying formulations: bacteriocidal ratings and properties listed and compared. 35 pp. Report submitted to Nooraid Corporation.
- Heckmann, R. A. 1986. Nontoxic germicide and healing composition. Affidavit for U. S. Patent and Trademark Office. Art Unit 125 Serial No. 798, 353. 15 pages.
- Heckmann, R. A. 1986. Scanning Electron Microscope (SEM) analysis of Santoprene thermoplastic rubber (201-55) from Monsanto Co. 7 pp. Report submitted to Silicone Products, Daryl Hennick.
- Heckmann, R. A. 1986. Scanning Electron Microscope (SEM) analysis of Santoprene thermoplastic rubber (201-64) prepared at two thicknesses (0.125 and 0.062), Monsanto Co. 10 pp. Report submitted to Silicone Products, Daryl Hennick.
- Noorlander, D. O. and R. A. Heckmann. 1986. Milking machine design and mastitis. Benson Institute Review 8:6-10.
- Noorlander, D. O., R. A. Heckmann, and K. E. Kohkonen. 1986. Mastitis and the dairy industry: potential solutions for a worldwide problem. Benson Institute Review 8:10-14.
- Heckmann, R.A. 1988. Healing and Bacteriocidal Properties of Selected Herbal Extracts. 12 pages.

- Heckmann, R. A. 1988. Shelf Life of CS 15:10, An Experimental Bacteriocidal Dry Dip for Cattle. 5 pages. Submitted to Silicone Products Company (Pres. D. Henick).
- Heckmann, R. A. and K. O. Heckmann. 1988. Peru-Bolivia, Research projects (aquaculture) and Seminars (Ictiopatologia and Intensive English). Final report submitted to Farmer to Farmer (Univ. of Arizona) and Benson Institute (BYU). 21 pp.
- Heckmann, R. A. 1989. Advances for Aquaculture. Research in Peru and Bolivia. Submitted to Farmer-to-Farmer (Univ. of Ariz.) and Benson Institute (BYU). 17 pp.
- Heckmann, R. A. and K. O. Heckmann. 1989. Final Report, National Academics of Science Exchange Visit - USSR. Six months. Parts I & II. Part I: 42 pages. Part II: 23 pages.
- Heckmann, R. A., and K. O. Heckmann, 1990. National Academy of Science (USA - USSR) Final Report of Six Month Exchange Visit USSR and Poland. 65 pages, sent to the U. S. Academy of Science, Washington, D.C.
- Heckmann, R. A., 1990. Fine Structure Evaluation of a Silicone Rubber Inflation for Milking Machines. Sent to Silicone Products, Inc. Millville, Utah, 12 pages.
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- Bingham, I.*, L. Bingham, R.A. Heckmann, and J.S. Gardner. 1998. Size and Density Variation in Microtriches from *Bothriocephalus* Species Found in *Cyprinus carpio* from Lake Powell, Utah. Annual meeting, Utah Academy of Science, Westminster College, Salt Lake City, Utah. April 3. Abstract & presentation 3:15. (Best Poster Award)
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- Wilkins, K.R.*, and R.A. Heckmann. 1998. Occurrence of the Eye Fluke *Diplostomum spathaceum*, in Fishes from Lakes in Utah and Wyoming. Proceedings, Rocky Mountain Conference of Parasitologists, May 14-16, Mesa State College, Grand Junction, Colorado. Abstract No. 24.
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- Young, D.*, R.A. Heckmann, and J.S. Gardner. 1998. Taxonomic Identification of *Rhabdochona* Species Found in *Oncorhynchus clarki* Using Scanning Electron Microscopy. Annual meeting, Utah Academy of Science, Westminster College, Salt Lake City, Utah. April 3. Abstract & presentation II, 2:30.
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- Abd-Allah, Gamal A., Refaat I. EL-Fayoumi*, Micah J. Smith, Richard A. Heckmann, and Kim L. O'Neill 1999. A Comparative Evaluation of Aflatoxin B₁ Genotoxicity in Fish Models Using the Comet Assay. 2:45 *Annual Meeting Utah Academy of Science, Brigham Young University, Provo, Utah*.
- Allen, Michael J.*, Richard A. Heckmann 1999. The Use of Pathological Tissue as Examples for Final Exams in Basic Histology. 2:30 *Annual Meeting Utah Academy of Science, Brigham Young University, Provo, Utah*
- Allen, Michael, Richard Heckmann, and Seth Jones* 1999. The Use of Digital Imaging, The Internet and Computer Programs for Parasite Research. 30th Annual Meeting Rocky Mountain conference of Parasitologists, Pocatello, Idaho (Idaho State University).
- Conger, T.H.* and R.A. Heckmann* 1999. Cestode Reservoir in Yellowstone Lake Fish. Presented at the 49th Annual Southwest Conference on Diseases in Nature Transmissible to Man. Abstract 10: Tyler, Texas (26 May 1999).
- Davis, Spenser, Richard Heckmann, and James Thorne* 1999. Photodynamic Treatment of Parasites in Fish. 30th Annual Meeting Rocky Mountain conference of Parasitologists, Pocatello, Idaho (Idaho State University).
- Edington, Stephen*, and Richard Heckmann, 1999. Comparative SEM Study of Cestode Scolices from Cutthroat Trout and Smallmouth Bass. 30th Annual Meeting Rocky Mountain Conference of Parasitologists, Pocatello, Idaho (Idaho State University).
- Edington, Stephen, Richard Heckmann 1999. Comparative SEM Study of Cestode Scolices from Cutthroat Trout and Smallmouth Bass. 30th Annual Meeting Rocky Mountain conference of Parasitologists, Pocatello, Idaho (Idaho State University - Poster Session).

- El Fayoumi*, and R. Heckmann, 1999. Host Response for the Use of Praziquantel (*Droncit*) Against Fish Parasites; Nucleic Acid Damage. 30th Annual Meeting Rocky Mountain Conference of Parasitologists, Pocatello, Idaho (Idaho State University).
- Feng, Jingyuan, Richard Heckmann 1999. Fine Structure Study of *Apiosoma* and *Thecamoeba* Infesting Mottled Sculpin, *Cottus bairdi*. 3:15 Annual Meeting Utah Academy of Science, Brigham Young University, Provo, Utah.
- Feng, Jingyuan, Richard Heckmann 1999. Fine Structure Study of *Apiosoma* and *Thecamoeba* Infesting Mottled Sculpin, *Cottus bairdi*. 3:15 Annual Meeting Utah Academy of Science, Brigham Young University, Provo, Utah.
- Feng, Jingyuan, and R.A. Heckmann. 1999. Fine Structure Study of *Apiosoma* and *Thecamoeba* Infesting Mottled Sculpin, *Cottus bairdi*. 3: 30th Annual Meeting Rocky Mountain Conference of Parasitologists, Pocatello, Idaho (Idaho State University).
(Poster Session: Received “Best Demonstration” Award)
- Gardner, John, Richard Heckmann* 1999. New Techniques For Observing Whole Mounts of Parasites by Scanning Electron Microscopy. 4:00 Annual Meeting Utah Academy of Science, Brigham Young University, Provo, Utah.
- Harvey, B.D.*, R.A. Heckmann, and J.S. Gardner 1999. External Morphology of Parasitic Nematodes from Yellowstone Lake Fishes. 3:30 Annual Meeting Utah Academy of Science, Brigham Young University, Provo, Utah.
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- Hironaka, G. and R.A. Heckmann. 2004. Infestation of *Dactylogrus vastator* (Monogenoidea: Dactylogyridae) on tropically raised koi (*Cyprinus carpio*) Abstract. Annual Conference. Utah Academy of Sciences, Arts and Letters. Southern Utah University, April 16, 2004, Cedar City, Utah.
- Hironaka, G. and R.A. Heckmann. 2004. Ichthyophthirius multifiliis infestation of Pseudotropheus tropheops and P. elongatus due to introduction of P. zebra (snowflake cichlid). Abstract. Annual Conference. Utah Academy of Sciences, Arts and Letters. Southern Utah University, April 16, 2004, Cedar City, Utah.
- Villella, D.A. and R.A. Heckmann 2004. Ectoparasites of Egyptian mummies from a cemetery at Fayyum, Egypt. 35th Annual Meeting, Rocky Mountain Conference of Parasitologists Casper, Wyoming Apr. 29-May 1. No. 3: 10.
- Hironaka, G. and R.A. Heckmann 2004. Ichthyophthirius multifiliis infestation of pseudotropheus tropheops and P. Elongatus due to introduction of P. Zebra (Snowflake Cichlid). Ectoparasites of Egyptian mummies from a cemetery at Fayyum, Egypt. 35th Annual Meeting, Rocky Mountain Conference of Parasitologists Casper, Wyoming Apr. 29-May 1. No. 4:10 Poster Also.
- Amin, O.M. and R. A. Heckmann. 2012. Expanded description of *Neoechinorhynchus (Hebesoma) manubrianus* (Acanthocephala: Neoechinorhynchidae) from marine fish in Halong Bay, Vietnam. Parasite. 19: 267-270.
- Heckmann, R.A., A. Khan and O.M. Amin. 2010 Juveniles of Genus *Oligacanthorhynchus* Travassos, 1915 (Acanthocephala: Oligacanthorhynchidae Southwell & Macfie, 1925) from savakes in Karachi, Pakistan. Pakistan Journal of Zoology.
- Mohamoud, S.A., R.A. Heckmann, A. El-Naggar and S.I. Tayl. 2012. Histopathological study of Fisheries from the Nile River, Egypt Infected with Helminth Parasites. Proceedings of Parasitology. 53: 93-102.

Editorial Board for Proceedings of Parasitology **Appointed** **June 2000**
 Member, Editorial Board, Western North American Naturlist

F. Other Evidence of Scholarly Accomplishment

Consultant Work:

Consultant Research Associates: Provo: Histopathology of Laser Knives
 Westinghouse Electric Corporation: Impact Studies, Fisheries
 Central Utah Project: Impact studies, Fisheries
 Noorlander Corporation: Quality studies, Mastitis in cattle
 Bureau Land Management: Impact studies, Fisheries
 Vaughn Hansen Associates: Aquaculture with Geothermal water.
 Thesis Reviewer: Cairo University and Al Azhar University: Cairo, Egypt.

9. Professional development activities and dates (past 5 years)
 Hosted visiting scientists and professors; Egypt, Tasmania, Chile, Colorado, Russia, China
 Seminar Speakers, hosted two
 Gave Invited paper at an international meeting.
- Ft. Collins, Colorado. Presented invited paper (Lung Flukes in Vietnam) at the 55th Annual Meeting of the International Northwestern Conference on Diseases of Nature Communicable to Man. July-August 2000.

Mesa College, Colorado: Grand Junction, Colorado. Biology Colloquium “Emerging Fish Parasites, Effect on Endangered Fish Species.” Guest Speaker, October 27, 2000.

Colorado State University: Ft. Collins, Colorado: Invited Speaker, 55th International Northwestern Conference on Diseases in nature communicable to man: August 16-19, 2000. “Emerging Lung Fluke and Liver Fluke Problems in Humans in Vietnam.”

Ph.D. evaluator and thesis reviewer: Baqai Medical University and Karachi University: Karachi, Pakistan.
Evaluator for faculty rank changes at the same university.

10. Research and Creative Activities Funding (past 5 years). (Bold as long as grant is current for reporting year)

A. Funded grants, gifts and contracts

<u>Source</u>	<u>Dates</u>	<u>Amount</u>	<u>Title</u>
North Texas Research Laboratory Grand Prairie, Texas	Dec. 2008- Jun. 2009	\$ 6,736.00	Bacteriocidal Properties of 4 Formulations of Aloe Vera
CIMA (BYU)	2001-2002	\$45,000	Prepare and complete a digitized programed CD for the Histology class.
CIMA (BYU) Fac Cntr 2000		\$5,500.00	“Enhancing the Audio-Visual and WEB site materials for Histology (Zoology 380) Labs”
David M. Kennedy Center for International Studies.BYU	1999	\$2,000	Training Sessions for the Evaluation of the Human Parasites Among Ethnic Groups In Vietnam: Prevention Methods
BYU Faculty Center Course Development	1998	\$4,000	Enhancing the audio-visual materials for Histology (Zool 380) labs
Utah Division of Wildlife Resources	1995	\$10,000	Whirling Disease, Utah Salmonids
Nevada Division of Wildlife Resources	1988-89	\$6,000	Biological characteristics, Pahrump Poolfish, emphasizing adaptations and parasites
Nevada Division of Wildlife Resources	1986, 1987, 1988	\$17,000	Parasites and Diseases of the Pahrump Poolfish
Nevada Division of Wildlife Resources	1987	\$2,000	Bacterial Parasites of White River Springfish; Hico & Crystal Springs
University of Nevada Las Vegas: U.S. Fish & Wildlife Services (J. Deacon)	1987, 1988	\$5,000*	Parasites and Diseases of the Woundfin Minnow, Virgin River
BARD: Binational Agriculture Research and Development Fund (Wallace, Heckmann,	1986, 1987 1988, 1989	\$84,900*	Heat transfer methods and water quality maintenance by integrating alternative energy sources for intensive aquaculture

Cohen, Stern, and Zamir)			(US and Israel)
Brigham Young University	1986-87	\$2,601	Biology and management of the the Asian Fish tapeworm, <i>Bothriocephalus acheilognathi</i> , from endemic fishes of the Virgin River, Utah
Brigham Young University	1987-88	\$1,800	The initial source and pathogenesis of the Asian fish tapeworm <i>Bothriocephalus acheilognathi</i> in endemic fishes of the Virgin River, Utah
Idaho Fish and Game Department	1982, 1983, 1984, 1985	\$10,835	Evaluation and Management of the Fish Eye Fluke <i>Diplostomum spathaceum</i> for hatchery Sites Upper Salmon River, Schering Corporation
Schering Corporation	1984	\$5,000*	Efficacy studies using scanning electron microscopy for two nasal sprays.
IBA	1983	\$3,000	Preliminary studies of a dry teat dip for Dairy Animals. Scanning and transmission electron microscopy.
Arizona Fuels Corp.	1979	\$65,322	The Potential of Lobster Production in Synthetic Sea Water: A Feasibility Study
Utah Division of Wildlife Resources	1979	\$10,000*	Biological Control of <i>Diplostomum spathaceum</i>
Utah Energy Consortium Utah Power & Light	*1979	\$20,000*	Potential Use of Heated Effluent and For Aquaculture
Nielsen, Maxwell and Wangsgard, Inc.	*1979	\$14,650*	Bottle Hollow Reservoir Aquatic and Fisheries Assessment
Naval Arctic Research Laboratory, University of Alaska Study	1979	\$35,000	Parasites of the Bowhead Whale: EIS Study
Naval Arctic Research Laboratory, University of Alaska Study	1980	\$18,500	Elemental Analysis, SEM-EDAX of Whale Tissue: EIS Study
Utah Division of Wildlife Resources	1978	\$10,000*	Biological Control of <i>Dipostomum spathaceum</i>
Arizona Fuels Corp.	1978	\$55,690*	The Potential of Lobster Production in Synthetic Sea Water: A Feasibility Study
Arizona Fuels Corp.	1977	\$53,620*	The Potential of Lobster Production in Synthetic Sea Water: A Feasibility Study
Westinghouse Corporation Utah Division of	1976 1975	\$3,000* \$8,000*	EIS: Fremont River Biological Control of

Wildlife Resources

Diplostomum spathaceum

NSF-URP

1975

\$15,000*

An Interdisciplinary Study for protein
production through aquaculture

*Co-Principal Investigator

B. Grants and contracts submitted

11. Miscellaneous Activities

Branch President, MTC, Provo, Utah, BYU
Home Teacher, Edgemont 10th Ward

Community Service:

Museum of Art—Guide: Masada & Chinese Exhibits
Manuscript Review: Three for *Scientific Journal*

GRADUATE STUDENTS

Richard Heckmann (✓) Chaired
member of several other Grad Student Committees

Date	Name	Degree	Title of Thesis/Dissertation
1972	Cranney, J. S. (✓)	MS	<i>Trypanoplasma atraria</i> N.SP. (Kinetoplastida: Bodonidae) in fishes from the Sevier River Drainage, Utah
1973	Wallace A. Evans (✓)	PhD	The Life history and pathology of <i>Sanguinicola klamathensis</i> wales in <i>Salmo clarki henshawi</i> Gill and Jordan at Hagerman National Hatchery, Idaho
1974	Edward J. Peters (✓)	PhD	The effects of highway construction on the fish populations in the Weber River near Henefer, Summit County, Utah
1975	Stephen H. Hilton (✓)	MS	Cinemicrography of selected parasites of fishes and free-living stages of <i>Haemonchus contortus</i>
1975	Fred A. Mangum	PhD	Analysis of macroinvertebrates samples from the Rocky Mountain Streams
1976	R. Scott Evans (✓)	MS	The incidence and life cycle of <i>Diplostomum spathaceum</i> in Utah
1976	Rex C. Infanger (✓)	MS	Potential diets for Carp production
1978	Roger W. Mickelsen (✓)	MS	The use of Great Salt Lake water for lobster production
1978	David G. Farley (✓)	MS	Chemotherapy and electrotherapy of Ichthyophthiriasis: <i>Ichthyophthirius multifiliis</i>
1979	Wayne S. Schaefer (✓)	PhD	Population dynamics of rainbow smelt in Lake Superior
1981	Terry N. Otto (✓)	MS	Tissue response by cutthroat trout (<i>Salmo clark</i>) to infection with <i>Diphyllbothrium codiceps</i> larval stages
1981	J. Craig Breinholt (✓)	MS	Parasites from two species of suckers (<i>catostomidae</i>) from Southern Utah
1981	Steven A. Stratton	PhD	The effects of therapeutic Ultrasound on the integrity of a nonpenetrating wound of an adult male rat

1981	Sterling Ray Wadley (✓)	MS	Growth of Juvenile American lobsters in semi-open and closed culture systems using formulated diets
1983	Max L. Checketts (✓)	MS	Effects of materials and designs used in inflations relative to their durability, porosity tissue damage and incidence of mastitis in dairy cattle
1985	Myrer, J. W.	PhD	Topically applied dimethyl sulfoxide - its effects on inflammation and healing of a contusion
1987	Jea Kim Yi (✓)	MS	Key morphological characteristics of <i>Dentostomelia translucida</i> , a nematode (Oxyuroidea) found in Mongolian Gerbils
1990	Li Zhuo (✓)	MS	Histopathology of bacteria kidney diseases in rainbow trout, <i>Oncorhynchus mykiss</i>
1990	McWhorter, J. W.	PhD	Influence of local steroid injections on traumatized tendon properties
1991	Nahed E. J. Abdo	MS	A parasitological investigation on the cestodes in the ileum of the domestic pigeon and the histological and histochemical characteristics of one of its common representative <i>Raillientina</i> spp.
1991	Marsha E. Madsen	MS	Effects on acrosome integrity in canine (Bull Terrier) semen using three freezing techniques and two levels of glycerol in the extender
1993	Victor H. Inchausty (✓)	MS	An alternative method for generating fish silage for small scale animal production
1994	Ying Qi (✓)	MS	Morphological and host-parasite studies of <i>Trichodina tenuiformis</i> stein, 1979; <i>Apiosoma bairdi</i> N. Sp. And <i>Apiosoma campanulatum</i> Timofeer, 1962 infesting mottled Seulpin Cottus bairdi Girard 1850 from Provo River, Utah
1994	Gregory, T. M.	PhD	The effect of exercise on the presence of leukocytes, erythrocytes and collagen fibers in skeletal muscle after contusion
1995	Mehmet Cernal Oguz	PhD	Mudanya Kiyilarindaki Bazi Teleost Balıklarda Rastlanılan Helmintoller

1996	Daniel J. H. Kwak (✓)	MS	The identification and characteristics of a new species of <i>Clostridium</i> isolated from the lower intestinal tract of <i>Cottus bairdi</i>
1996	Thomas Adam Bowen (✓)	Honors	A fine structure comparison of three species of <i>Argulus</i> (Crustacea Branchiura)
1996	Mohamed Ahmed Ali	PhD	Biological studies on Trichodinids and Myxosporidia infecting fishes in saline - and freewater lakes in Egypt
1997	Nahed E. J. Abdo (✓)	PhD	Some Parasites of Red Sea Fishes, Egypt
1997	Victor H. Inchausty (✓)	PhD	Parastic studies of fish parasites in Utah and South America
1997	Michael Foutz (✓)	Honors	Metocercariae cutthroat trout from Yellowstone Lake, Wyoming and other effect on lake trout
1997	Marty Ericksen (✓)	MS	Light and electron microscopy including x-ray microanalysis of human prostate concretions in relation to prostate cancer
1997	Brian Keith Reid (✓)	Honors	The supplement to the Histology lab manual
1998	Emily A. Cox (✓)	Honors	An expanded illustrated histology manual
1998	Nathan A. Bay (✓)	MS	Studies on the triactinomyxon of <i>Myxobolus cerebralis</i> : heavy metals as an exogenous effect influencing virulence of the organism and sporoblast analysis
1998	Ahmed H. Abdeltawab	PhD	Studies on hepatic fibrosis induced by <i>Schistosomiasis mansoni</i> and <i>Aflatoxicosis</i>
1999	Jingyuan Feng (✓)	MS	Fine structure study of two genera of protozoa <i>Apiosoma</i> and <i>Thecamoeba</i> infesting mottled sculpin, <i>Cottus bairdi</i>
1999	Khalid Eldeen	PhD	Ecological markers for the evaluation of ecotoxicity stress and its immune effects in Freshwater fish
1999	Tabatabaei, Nilofaur (✓)	MS	Effect of prematurity on expression of endothelial cell adhesion molecules
2000	Terry H. Conger (✓)	PhD	Articles on selected parasites of fish and zoonotic diseases

2000	Refaat El-Fayoumi	PhD	Studies on physiological changes included in some Egyptian fishes by some ecological factors and the gill parasites
2000	Dallin C. Young (✓)	MS	Biological characteristics and Range extension of <i>Rhabdochona paxmani</i> (Maggenti), Abdel-Rahman, and Cid de (Prado 1992) infecting <i>Oncorhynchus clarki</i> (Richardson 1836) of Little Cottonwood Creek, Utah
2000	Call, G. B.	MS	Bovine adrenal cells secrete interleukin-6 and tumor necrosis factor in viitro
2000	Clothier, Brian (✓)	MS	Plerocercoid infections of <i>Proteocephalus ambloplitis</i> (Leidy, 1887) in hepatic tissue of smallmouth bass, <i>Micropterus dolomieu</i> Lacepede, a histological study
2001	Jon C. Kerr (✓)	Honors	Histology: a students comprehensive lab manual
2003	Azra Anjum Shaikh	PhD	Studies on pathology and biochemical changes in the liver due to Fascioliasis infection in overies and borrrines of Hyderabad Division, Sindh
2003	Atif El Nigar (✓)	PhD	Parasites of fishes from the Nile Rivers, Egypt, a survey
2004	Nabell Mohammad Ghanem	PhD	Toxic effects of Ergotamine on the tissue and blood of albino rats

CURRICULUM VITAE

Richard W. Heninger

Sources:

Pub Med: <http://www.ncbi.nlm.nih.gov/pubmed>

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Education:

BS, Brigham Young University, 1957

MS, Oklahoma State University, 1959

PhD, Oklahoma State University, 1961 (Adviser: W.S. Newcomer)

Employment:

Post-doctoral fellow, University of Wisconsin School of Medicine with E.C. Albright, 1961-1966.

Faculty Member, Brigham Young University, 1966-1999

Consultant, Nicholes Institute for Endocrinology, San Pedro, California

Teaching:

Mammalian Physiology, Endocrinology, Experimental Endocrinology, Advanced Physiology I,II,
Elementary Human Physiology, Applied Human Physiology, Pathophysiology

Research Funding:

NIH Grant to study tissue concentrations of thyroid hormones, 1966

Memberships in Professional Societies:

American Physiological Society

Endocrine Society

Administrative Assignments:

Chair, Department of Zoology, 1983-1988

Associate Dean, College of Biology and Agriculture, 1988-1998

Publications:

Newcomer WS and Heninger RW. Glucuronic conjugation of steroids in the avian adrenal gland. *Proc Soc Exp Biol Med* 105:32-35, 1960.

Heninger RW, Larson FC, and Albright EC. Iodine-containing compounds of extrathyroidal tissues. *J Clin Invest* 42:1761-1768, 1963.

Heninger RW and Newcomer WS. Plasma protein binding, half-life, and erythrocyte uptake of thyroxine and triiodothyronine in chickens. *Proc Soc Exp Biol Med* 116:624-628, 1964.

Heninger RW, Larson FC, and Albright EC. Intracellular distribution of iodine-containing compounds in rat liver, kidney, and heart. *Endocrinology* 78:61-66, 1966.

Heninger RW and Newcomer WS. Distribution and metabolism of I-131-labeled thyroxine and triiodothyronine in subcellular fractions of chicken myocardium. *Proc Soc Exp Biol Med* 121:691-695, 1966.

Heninger RW and Albright EC. Effect of iodine deficiency on iodine-containing compounds of rat tissues. *Endocrinology* 79:309-315, 1966.

Bitter RA, Gubler CJ, and Heninger RW. Effects of forced-feeding on blood levels of pyruvate, glucocorticoids and glucose and on adrenal weight in thiamine-deprived and thiamine antagonist-treated rats. *J Nutr* 98:147-152, 1969.

Heninger RW, Mong FN, and Albright EC. Relationship of the P:O ratio to thyroid hormone content of isolated rat liver mitochondria. *Proc Soc Exp Biol Med* 133:110-113, 1970.

Winder WW and Heninger RW. Effect of exercise on tissue levels of thyroid hormones in the rat. *Am J Physiol* 221:1139-1143, 1971.

Winder WW and Heninger RW. Effect of exercise on degradation of thyroxine in the rat. *Am J. Physiol* 224:572-575, 1973.

Heninger RW and Albright EC. Alteration in tissue and serum concentrations of TSH, iodide, T4 and T3 induced by various dietary iodide levels. *Proc Soc Exp Biol Med* 150:137-141, 1975.

Marcusen DC and Heninger RW. Effect of ascorbic acid on the pituitary-thyroid system in the rat. *J Endocrinol* 70:313-314, 1976.

Peterson KL, Heninger RW, and Seegmiller RE. Fetotoxicity following prenatal treatment of mice with tobacco smoke and ethanol. *Bull Environ Contam Toxicol* 26:813-819, 1981.

Rhees RW, Wilson CT, and Heninger RW. Influence of streptozotocin diabetes and insulin therapy on plasma corticosterone levels in male rats. *Horm Metab Res* 15:353-354, 1983.

Sellers TL, Jaussi AW, Yang HT, Heninger RW, and Winder WW. Effect of the exercise-induced increase in glucocorticoids on endurance in the rat. *J Appl Physiol* 65:173-178, 1988.

Curriculum Vitae

August W. Jaussi

Sources: Publications from Pub Med (<http://www.ncbi.nlm.nih.gov/pubmed>)

Education from BYU Catalog Web site

(<https://archive.org/stream/catalogofcourses19701972brig#page/550/mode/2up>)

Other from UA 909; Faculty Biographical Files; University Archives; L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University.

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Education:

BS, Brigham Young University, 1959

MS, Brigham Young University, 1955

PhD, Oklahoma State University, 1960

Employment:

US Navy, 1943-1946

Faculty Member, Brigham Young University, 1962-1990

Teaching:

Mammalian Physiology, Endocrinology, Experimental Endocrinology, Advanced Physiology I,II, General and Comparative Physiology, Elementary Human Physiology

Research Support:

Grant from the National Science Foundation to study slime mold.

Publications:

Jaussi AW, Newcomer WS, and Thayer RH. Hyperlipidemia effect of ACTH injections in the chicken. *Poultry Sci* 41:528-532, 1960.

Jaussi AW. Some effects of ACTH on metabolism and blood cells in the chicken. PhD Thesis, Oklahoma State University, 1960.

Cheney DL, Gubler CJ, Jaussi AW. Production of acetylcholine in rat brain following thiamine deprivation and treatment with thiamine antagonists. *J Neurochem*. 16:1283-1291, 1969.

Ellis LC, Jaussi AW, Baptista MH, Urry RL. Correlation of age changes in monoamine oxidase activity and androgen synthesis by rat testicular minced and teased-tubular preparations in vitro. *Endocrinology* 90:1610-1618, 1972.

Urry RL, Jaussi AW, Ellis LC. Simple microradiometric technique for the rapid measurement of monoamine oxidase activity in rat testicular minced and teased-tubular preparations. *Anal Biochem.* 50:549-557, 1972.

Ellis LC, Jaussi AW, and Tait GR and Urry RL. In vivo and in vitro effects of X-irradiation and histamine-PO₄ on rat and bovine pineal gland activity and melanin synthesis. *Life Sci* 13:835-845, 1973.

Ellis LC, Jaussi AW, Tait GR, Urry RL. In vivo and in vitro effects of X-irradiation and histamine-PO₄ on rat and bovine pineal HIOMT activity and melatonin synthesis. *Life Sci.* 13:835-845, 1973.

Sutherland DJ, Jaussi AW, Gubler CJ. The effects of thiamine deprivation, and oxythiamine- and pyriethamine-treatment on cardiac function and metabolism in the rat. *J Nutr Sci Vitaminol (Tokyo)* 20:35-54, 1974.

Jaussi AW. Hemodynamics: a simple laboratory system. *Physiologist* 24(1):35-36, 1981.

Winder WW, Yang HT, Jaussi AW, Hopkins CR. Epinephrine, glucose, and lactate infusion in exercising adrenodemedullated rats. *J Appl Physiol* 62:1442-1447, 1987.

Sellers TL, Jaussi AW, Yang HT, Heninger RW, Winder WW. Effect of the exercise-induced increase in glucocorticoids on endurance in the rat. *J Appl Physiol* 65:173-178, 1988.

CURRICULUM VITAE

Duane E. Jeffery

Sources:

Pub Med: <http://www.ncbi.nlm.nih.gov/pubmed/?term=Jeffery+DE>

http://www.worldcat.org/search?q=au%3AJeffery%2C+Duane+E.&fq=&dblist=638&qt=first_page

<http://lsmagazine.byu.edu/Issues/spring2009/profilesretirees.aspx>

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Education:

BS, Utah State University, 1962

MS, Utah State University, 1963

MA, University of California at Berkeley, 1966

PhD, University of California at Berkeley, 1972

Employment:

Faculty Member, Department of Zoology, Brigham Young University, 1969-2009

Teaching:

Heredity

General Genetics

Genetics Laboratory

Human Genetics

Developmental Genetics

Comparative Evolutionary Theory (later changed to Evolutionary Science)

Human Heredity and Reproduction

History and Philosophy of Biology

Honors and Awards:

ASBYU Master Teacher Award, Brigham Young University, 1971

BYU Honors Professor of the year, Brigham Young University, 1979

College of Biology and Agriculture Distinguished Teacher Award, Brigham Young University, 1984

Alcuin Award, Brigham Young University, 1986-1991

Karl G. Maeser Distinguished Teacher Award, Brigham Young University, 1991
Department of Zoology Outstanding Service Award, Brigham Young University, 1996
College of Biology and Agriculture Distinguished Teacher Award, Brigham Young University, 2004
Member Board of Directors, National Center for Science Education, 1994-2009

Publications:

Jeffery DE. [Book review] Succession in the Church. *Brigham Young University Studies* 11:207-210, 1971.

Jeffery DE. Seers, savants and evolution: the uncomfortable interface. *Dialogue* 8:41-75, 1974.

Snow S, Snow K, Woodward D, Eatough NL, Jeffery DE. Seers, savants and evolution : a continuing dialogue ... *Dialogue* 9:21-38, 1974.

Jeffery DE. Position effects at the Hairy Locus in *Drosophila melanogaster*. *Genetics* 91:105-125, 1979.

Jeffery DE. Intersexes in humans: an introductory exploration. *Dialogue* 12:107-113, 1979.

Turner ME, Jeffery DE. *Drosophila pseudoobscura* of the Great Basin II. Third chromosome arrangements of selected Northern Utah populations. *Amer Nat* 115:771-779, 1980.

Palomaki ELK, Jeffery DE, Atkin C. Alport syndrome: a new chromosome instability syndrome? Thesis/Dissertation, Brigham Young University, 1981.

Jeffery DE. Dealing with creationism. *Evolution* 37:1097-1100, 1983.

Pope SR, Jeffery DE. *Drosophila pseudoobscura* of the Great Basin III; evidence for habitat selection. Thesis/dissertation, Brigham Young University, 1984.

Jeffery DE. Are Mormon's creationists. *Sunstone* 10:44-45, 1985.

Pliley MD, Farmer JL, Jeffery DE. In situ hybridization of biotinylated DNA probes to polytene salivary chromosomes of *Drosophila* species. *Dros Inf Serv* 63:147-149, 1986.

Jeffery DE, Farmer JL, Pliley MD. Identification of Mullerian chromosome elements in Hawaiian *Drosophila* by in situ DNA hybridization. *Pacific Sci* 42:48-50, 1988.

Whiting JH, Pliley MD, Farmer JL, Jeffery DE. In situ hybridization analysis of chromosomal homologies in *Drosophila melanogaster* and *Drosophila virilis*. *Genetics* 122:99-109, 1989.

Jeffery DE. Weekly *Science and Society* columns in the *Daily Herald*, Provo, Utah, 1990-2014. Monthly thereafter.

Anderson WW, Arnold J, Baldwin DG, Beckenbach AT, Brown CJ, Bryant SH, Coyne JA, Harshman LG, Heed WB, Jeffery DE, et al. Four decades of inversion polymorphism in *Drosophila pseudoobscura*. *Proc Natl Acad Sci* 88:10367-10371, 1991.

Su Y, Herrick K, Farmer JL, Jeffery DE. *Zaprionus tuberculatus*: chromosome map and gene mapping by DNA in situ hybridization. *J Hered* 83:299-304, 1992.

Jeffery DE. Genes and Human Behavior. Family Fellowship, Salt Lake City, UT, 1994.

Jeffery DE. Seers , savants and evolution: the uncomfortable interface. *Dialogue* 34:183-224, 2001.

Jeffery DE, Norman KE (interviewer). Thoughts on Mormonism, evolution and Brigham Young University. *Dialogue* 35:

Jeffery DE. Noah's Flood: Modern Scholarship and Mormon Traditions. *Sunstone* 134:27-45, 2004.

Evenson WE, Jeffery DE. Mormonism and evolution: the authoritative LDS statements. Greg Kofford Books, Salt Lake City, 2005.

Johnson JB, Adair M, Adams BJ, Fairbanks DJ, Itamura V, Jeffery DE, Merrell D, Ritter SM, Tolman RR. Evolution education in Utah: A State Office of Education-University partnership focuses on why evolution matters. *Evolution: Education and Outreach* 2:349-358, 2009.

CURRICULUM VITAE

Clive D. Jorgensen

Sources:

The Great Basin Naturalist 50-Year index, Volumes 1-50, 1939-1990, Great Basin Naturalist 51:1-108, 1991.

Online BYU Catalogues and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Science Citation Index and Biosis Searches for Jorgensen CD

Department of Zoology Records, UA1195, Zoology Scrapbook, 1959-1976, L. Tom Perry Special Collections, H. B. Lee Library, Brigham Young University

Education:

BS, Brigham Young University, 1954
MS, Brigham Young University, 1957
PhD, Oregon State University, 1964.

Employment:

Faculty Member, Brigham Young University, 1963-1996

Teaching:

Economic Entomology
Population Ecology
Integrative Principles of Zoology
Environmental Biology
Tropical Biology

Service:

Chair, Department of Zoology, 1981-1984

Professional Memberships:

American Society of Mammalogists
Entomological Society of America
Sigma Xi

Research Support:

USDA Division of Entomology
Atomic Energy Commission (with Dorald Allred and D. Elden Beck)
NSF Grant (with Duane Smith), Demography of *Dipodomys* and *Peromyscus*
NSF Grant (with Duane Smith), Methods of Estimating Vertebrate Populations

Utah State University, Pine Valley Validation Study
University of Utah, Raft River Environmental Study

Publications:

Jorgensen CD. Oviposition habits of the tick *Dermacentor parumapertus* Neumann and factors influencing egg development. *Great Basin Naturalist* 17:42-51, 1957.

Jorgensen CD. Disturbance of mammal traps by jack rabbits. *Great Basin Naturalist* 22:83-86, 1962.

Jorgensen CD. Notes of shrews from southern Nevada. *Journal of Mammalogy* 44:582, 1962.

Jorgensen CD, Orton AM, Tanner WW. Voice of the leopard lizard *Crotaphytus wislizeni* Baird and Girard. *Proceedings of Utah Academy of Sciences, Arts, and Letters* 40(1):115–116, 1963.

Jorgensen CD, Tanner WW. The application of the density probability function to determine the home ranges of *Uta stansburiana stansburiana* and *Cnemidophorus tigris tigris*. *Herpetologica* 19(2):105–115, 1963.

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Curriculum Vitae

January 2016

Allan M. Judd

Professor: Department of Physiology and Developmental Biology

Educational History:

<u>Name of Institution</u>	<u>Years</u>	<u>Major</u>	<u>Degree</u>
West Virginia University	1977-1982	Physiology	Ph.D.
Brigham Young University	1975-1978	Zoology	MS
Brigham Young University	1969-1973	Chemistry	BS

Professional Positions:

<u>Employer</u>	<u>Dates</u>	<u>Position</u>
Brigham Young University Department of Physiology & Developmental Biology	2006- 2002 - 2006	Professor Associate Professor
Brigham Young University Department of Zoology	1997- 2002	Associate Professor
Brigham Young University, Dept. Zoology	1991-1997	Assistant Professor
University of Virginia, Dept. Medicine	1986-1991	Research Assistant Professor
University of Virginia, Dept. Medicine	1985-1986	Research Associate
University of Virginia, Dept. Medicine	1981-1985	Postdoctoral fellowship

Professional Organizations and Honor Societies:

Endocrine Society 1985-present

Honors and Awards and Dates Received:

Brigham Young University, Department of Chemistry, Full Scholarship 1969

Brigham Young University, Graduated with honors from Department of Chemistry, 1973

West Virginia University, four-year competitive graduate student scholarship, 1978-1982

Invited speaker at Seventeenth Summer Symposium in Molecular Biology, Penn State University. July 30 1998. University Park, Pennsylvania.

Invited speaker to The Fourth International Congress of The International Society For Neuroimmunomodulation, October 1999. Lugano, Switzerland

College Outstanding Advisor, College of Biology and Agriculture, Brigham Young University, 2000

Outstanding Faculty, Department of Physiology and Developmental Biology, Brigham Young University 2002

Outstanding Citizenship Award, College of Biology and Agriculture, Brigham Young University, 2005

Scholarship:

Chapters in books

MacLeod, R.M., I.S. Login, G. Schettini, S.W.J. Lamberts and A.M. Judd. 1983. Pituitary hormone secretion may be influenced by pharmacologic agents through unexpected mechanisms. pp. 271-283, in Integrative Neurohumoral Mechanisms. Ed., E. Endroczi, D. de Wied, L. Angelucci, and U. Scapagnini. Elsevier Biomedical Press. Amsterdam.

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- Gonda, D.D., J.A. Macievic, O.F. Husein, J.D. Bell, L. Bridgewater, and A.M. Judd. A possible role for steroidogenic acute regulatory protein in interleukin-6 induced cortisol release from H295r cells. 84th Annual meeting of The Endocrine Society, June 2002. San Francisco, California
- Wilson, H.A., A.M. Judd, and J.D. Bell. Mechanism by which phospholipase A_2 causes cells to become resistant to its own action. Experimental Biology 2003, April 2003, San Diego, California.
- Gonda, D.D., L.C. Jensen, A.M. Judd, and J.D. Bell. Mechanism of the effect of temperature on hydrolysis of human erythrocytes by phospholipase A_2 . Experimental Biology 2003, April 2003, San Diego, California.
- Burgess, N.K., D.D. Gonda, L.C. Jensen, A.M. Judd, and J.D. Bell. Mechanisms governing susceptibility of erythrocyte membranes to secretory phospholipase A_2 . Experimental Biology 2003, April 2003, San Diego, California.
- Vest, R.S., C. Bateman, L.J. Gonzalez, A.M. Judd, S.A. Permann, E. Spencer, and J.D. Bell. Divalent cations decrease membrane fluidity in artificial and erythrocyte membranes. Experimental Biology 2003, April 2003, San Diego, California.
- Seager, D.C., A.J. Smith, G.C. Christensen, J.P. Porter, and A.M. Judd. Interleukin-6 increases the expression of c-Fos, c-Jun, JunB, and JunD in bovine adrenal fasciculata tissue and human adrenal tumor H295R cells. 85th Annual Meeting of the Endocrine Society, June 2003. Philadelphia, Pennsylvania

- Jensen, L.B., H.A. Wilson-Ashworth, A.M. Judd, and J.D. Bell. Quantification of the absorption of secretory phospholipase A₂ to cell membranes and relationship to its mechanism of action. Biophysical Society Annual meeting, February 2004. Baltimore, MD. Biophys. J. 86:377a.
- Taketa, K.M., A.J. Smith, J. McMullin, E. Nunez, G.C. Oliveira, J.P. Porter, and A.M. Judd. Toll-like receptor 4, CD-14, and toll-like receptor 2 are expressed in H295R adrenocortical cells and the rat adrenal cortex. 86th Annual Meeting of the Endocrine Society, June 2004, New Orleans, Louisiana.
- Strickland, J., S.A. McIlmoil, R.A. Castro, J.P. Porter, and A.M. Judd. Interleukin-6 increases the expression of steroidogenic acute regulatory protein in bovine adrenal zona fasciculata fragments and H295R cell. 87th Annual Meeting of the Endocrine Society, June 2005, San Diego, California.
- McIlmoil, S.A., R.A. Castro, J. Strickland, K.M. Taketa, J.P. Porter, and A.M. Judd. A possible role of the nuclear factors AP-1, steroidogenic factor-1, and DAX-1 in IL-6 stimulation of cortisol secretion. 87th Annual Meeting of the Endocrine Society, June 2005, San Diego, California.
- Brueseke, T.J., J.L. Fairbourn, A.L. Heiner, A.M. Judd, and J.D. Bell. Plasma membrane cholesterol concentration moderates secretory phospholipase A₂ susceptibility. Biophysical Society 50th Annual Meeting, February 2006, Salt Lake City, Utah.
- McIlmoil, S.A., D. Maulouf, J. Strickland, B. D. Powell, S. J. McIntyre, R.A. Castro, J.P. Porter, and A.M. Judd. Induction of mRNA expression for adrenal steroidogenic enzymes by interleukin-6. 88th Annual Meeting of the Endocrine Society, June 2006, Boston, Massachusetts.
- Bailey, R.W., E. D. Olson, M. P. Vu, T. J. Brueseke, L. Robertson, K. H. Parker, A. M. Judd, and J.D. Bell. Application of Membrane Biophysics to Cell Physiology: Mechanisms by which Apoptotic Membranes Become Susceptible to Secretory Phospholipase A₂. Biophysical Society 51st Annual Meeting, March 2007, Baltimore, Maryland.
- McIlmoil, S.A., J. Strickland, J.P. Porter, S.N. Sudweeks, and A.M. Judd. Interleukin-6 inhibition of bovine adrenal androgen release involves suppression of steroidogenic enzymes and SF-1 expression and augmentation of DAX-1 expression. 89th Annual Meeting of the Endocrine Society, June 2007, Toronto, Canada.
- Powell, B.D., S.A. McIlmoil, J. Strickland, and A.M. Judd. The human adrenal cell line H295R expresses micro inhibitory RNAs that may be involved in the regulation of steroidogenesis. 89th Annual Meeting of the Endocrine Society, June 2007, Toronto, Canada.
- Strickland, J., S.A. McIlmoil, S. J. McShane, J.L. Eliason, and A.M. Judd. Interleukin-6 may increase steroidogenic acute regulatory protein expression in human adrenal cell line H295R through activation of JAK/STAT pathway. 89th Annual Meeting of the Endocrine Society, June 2007, Toronto, Canada.
- Bailey, R.W., E. Gibbons, L. Robertson, T.T. Nguyen, J. Nelson, A. M. Judd, and J.D. Bell. Biophysical changes in the plasma membrane during glucocorticoid-stimulated apoptosis promote hydrolysis by secretory phospholipase A₂. Biophysical Society 52nd Annual Meeting, February 2008, Long Beach, California.
- Olson, E.D., T.T. Nguyen, A. M. Judd, and J. D. Bell. Relationship between membrane physical properties and secretory phospholipase A₂ hydrolysis kinetics in S49 cells during ionophore-induced apoptosis. Biophysical Society 52nd Annual Meeting, February 2008, Long Beach, California.
- Gibbons, E., C.E. Askew, K.R. Griffith, M.C. Streeter, A.O. Warcup, C.H.-Y. Yeung, A.M. Judd, and J.D. Bell. Membrane changes during apoptosis: part of the process or characteristics of the corpse? Biophysical Society 53rd Annual Meeting, February 2009, Boston, Massachusetts.
- Nelson, J., K. Barlow, D.O. Beck, A. Berbert, K. Damm, N. Eschenroder, K. Neeley, M. Pruitt, K. Thompson, B. Thurber, C.H.-Y. Yeung, A.M. Judd, and J.D. Bell. Chemotherapeutic apoptosis: who assailed the membrane, the inducer or the induced? Biophysical Society 53rd Annual Meeting, February 2009, Boston, Massachusetts.
- Anderson, L., K. Damm, R. Baker, J. Chen, A. Hamaker, I. Izidoro, E. Moss, M. Orton, K. Papworth, L. Sherman, E. Stevens, C. Yeung, J. Nelson, A.M. Judd, and J.D. Bell. Differential susceptibility of normal and transformed human leukocytes to hydrolytic attacks by secretory phospholipase A₂. Biophysical Society 54th Annual Meeting, February 2010, San Francisco, California.
- Nelson, J., E. Olson, K. Griffith, M. Streeter, A.M. Judd, and J. D. Bell. Kinetic evaluation of cell membrane headaddress during apoptosis by human isoforms of secretory phospholipase A₂. Biophysical Society 54th Annual Meeting, February 2010, San Francisco, California.

- Dayton, A. W., R.M. Argyle, T.B. Walker, B.D. Burrows, J.C. Smart, K.A. Dalton, T.L. Ogzewalla, and A.M. Judd. AMP-Activated Protein Kinase Increases the Expression of StAR in Adrenocortical Tissue. 91st Annual Meeting of the Endocrine Society, June 2010, San Diego, California.
- Gonzalez, L.J., E. Gibbons, R.W. Bailey, J. Fairbourn, T. Nguyen, S. K. Smith, K.B. Best, J. Nelson, A. M. Judd and John D Bell. The influence of membrane physical properties on microvesicle release in human erythrocytes. Biophysical Society 55th Annual Meeting, March 2011, Baltimore, Maryland.
- Nelson, J. , A. M. Berbert, E. Gibbons, K. R. Pickett, M. Streeter, A. O. Warcup, C.H.-Y. Yeung, A. M. Judd, and J.D. Bell. Biophysical basis for specificity of action of human isoforms of secretory phospholipase A₂ during cell death. Biophysical Society 55th Annual Meeting, March 2011, Baltimore, Maryland.
- Nelson J., L. Francom, L. Anderson, K. Damm, R. Baker, J. Chen, S. Franklin, A. Hamaker, I. Izidoro, E. Moss, M. Orton, E. Stevens, C. Yeung, A.M. Judd, and J.D. Bell. Investigation into the role of phosphatidylserine in modifying the susceptibility of human lymphocytes to secretory phospholipase A2 using cells deficient in the expression of scramblase. Biophysical Society 56th Annual Meeting, February 2012, San Diego, California.
- Gibbons, E., L. Anderson, K. Damm, S. Melchor, J. Nelson, A.M. Judd, and J.D. Bell. Role of membrane oxidation in controlling the activity of secretory phospholipase A2 toward apoptotic lymphoma cells. Biophysical Society 56th Annual Meeting, February 2012, San Diego, California.
- Gibbons, E., K. Pickett, M. Streeter, A. Warcup, J. Nelson, A.M. Judd, and J.D. Bell. Relationship between Membrane Fluidity Changes, Phospholipid Protrusion Probability and Phospholipase A2 Activity during thapsigargin-induced apoptosis. Biophysical Society 57th Annual Meeting, February 2013, Philadelphia, Pennsylvania.
- De Silva, M.S.I., C.I. Larkin, L.R. Rhoten, D.J. Hepworth, N.R. Nelson, L.W. Thomas, J.W. Mallett, and A.M. Judd. AMP-Activated Protein Kinase Inhibits the Expression of StAR and P450 in the Bovine Zona Reticularis. 95th Annual Meeting of the Endocrine Society, June 2013, San Francisco, California.
- Reese JC, M.S. De Silva, J.T. Johnson, M. D. Squires, L. S. Greenburg, A. P. Dalley, and J.P. Porter, and A.M. Judd. Activator Protein-1 Complex Functions as a Biochemical Intermediate in the Interleukin-6 and AMP-Activated Protein Kinase Regulation of Steroidogenic Enzymes in the Bovine Zona Fasciculata. 97th Annual Meeting of the Endocrine Society, March 2015, San Diego, California.
- Squires M.D., M.S. De Silva, J.T. Johnson, J.C. Reese, A.P. Dalley, L.S. Greenburg, J. P. Porter, and A. M. Judd. Interleukin-6 Alters the Expression of Steroidogenic Proteins in Bovine Adrenal Zona Fasciculata through Activation of AMP-Activated Protein Kinase. 97th Annual Meeting of the Endocrine Society, March 2015, San Diego, California.
- Dalley A.P., S.T. Stringham, J.C. Reese, A. S. Finneran, M.S. De Silva, J.P. Porter, and A.M. Judd. 2016. Activator Protein-1 Complex Functions as a Biochemical Intermediate in the Interleukin-6 and AMP-Activated Protein Kinase Regulation of Steroidogenic Enzymes in the Bovine Zona Reticularis. 98th Annual Meeting of the Endocrine Society, April 2016, Boston, Massachusetts.

Grants submitted after 1998

Pending None

Submitted, but not funded:

Biophysical basis of specificity of secretory phospholipase A2 toward different membranes. PI: John D. Bell, Allan M. Judd Co-investigator. Submitted November 2012 to NIH. June 2013-May 2016. Total requested \$300,000.

Phospholipase A₂ Model Applied to Biological Systems, John D. Bell P.I., Allan M. Judd Co. P.I. Feb. 26, 1998 submitted to NIH, Total amount requested \$678,331

Mechanism of Bilayer Susceptibility to Phospholipase A₂, John D. Bell P.I., Allan M. Judd Co. P.I. May 27, 1998 submitted to NIH, Total amount requested \$864,546.

Control of Cellular Susceptibility to Phospholipase A₂, John D. Bell P.I., Allan M. Judd Co. P.I. September 29, 1998 submitted to NIH, Total amount requested \$688,256.

Mechanisms of Increased Susceptibility to Phospholipase A₂ During Early Development of Atherosclerotic Lesions, Allan M. Judd P.I., John D. Bell Co. P.I., Submitted October 15, 1998 to American Heart Association - Western Affiliate, Total amount requested \$161,454.

Research Experience for Undergraduates, Edwin D. Lephart P.I., R. Ward Rhees, Allan M. Judd Co. P.I., Submitted September 11, 1998 to NSF, Total amount requested \$306,101.

Erythrocyte membrane structure and phospholipase A₂ activity. John D. Bell PI. Allan M. Judd Co-investigator. Submitted January 9, 2002 to NSF. Total amount requested \$487,753.

Susceptibility of abnormal erythrocytes to phospholipase A₂. John D. Bell PI. Allan M. Judd Co-investigator. Submitted January 30, 2002 to NIH. Total amount requested \$500,000.

Neuroscience research experiences for undergraduates at BYU. Allan M. Judd PI. Dixon J. Woodbury Co-investigator. Submitted September 15, 2002 to NSF. Total amount requested \$248,301.

Neuroscience research experiences for undergraduates at BYU. Allan M. Judd PI. Dixon J. Woodbury Co-investigator. Submitted September 15, 2003 to NSF. Total amount requested \$361,168.

Regulation of Skeletal Muscle LKB1. PI: William W. Winder, Jeffery R. Barrow, Allan M. Judd, David L. Kooyman, Craig Thulin Co-investigators. Submitted January 2004 to NIH. December 2004-November 2005. Total Requested \$1,875,000.

Biophysical mechanisms determining secretory phospholipase A₂ action on biological membranes. PI: John D. Bell, Allan M. Judd Co-investigator. Submitted April 2004 to NSF. January 2005-December 2009. Total requested \$733,550.

Biophysical mechanisms determining secretory phospholipase A₂ action on biological membranes of malignant leukocytes. PI: John D. Bell, Allan M. Judd Co-investigator. Submitted September 2009 to NIH. April 2009-March 2012. Total requested \$150,000.

Biophysical mechanism during apoptosis that determine cellular susceptibility to secretory phospholipase A₂. PI: John D. Bell, Allan M. Judd Co-investigator. Submitted September 2010 to NIH. April 2011-March 2014. Total requested \$150,000.

Biophysical basis of specificity of secretory phospholipase A₂ toward different membranes. PI: John D. Bell, Allan M. Judd Co-investigator. Submitted September 2011 to NIH. April 2012-March 2015. Total requested \$300,000.

Biophysical properties of cellular membrane that confers susceptibility to phospholipase A2. PI: John D. Bell, Allan M. Judd Co-investigator. Submitted April 2012 to NNSF. January 2013-December 2016. Total requested \$300,000.

Grants submitted and funded

Erythrocyte membrane structure and phospholipase A2 activity. John D. Bell PI. Allan M. Judd Co-investigator. July 1, 1999-June 30, 2003. NSF. Total amount funded \$274,051.

Effects of stress on blood pressure control mechanisms in young rats: role of brain angiotensin II. James P. Porter PI. Allan M. Judd Co-Investigator. July 1, 2000 - June 30, 2002. American Heart Association, Western Affiliate. Total amount funded \$117,674.

Neuroscience Research experience for undergraduate site at BYU. Edwin D. Lephart PI. R. Ward Rhees and Allan M. Judd Co-Investigators. July 2000-August 2003. NSF. Total Amount Awarded. \$196,080.

Short and long-term effects of maternal separation on blood pressure control in rats. PI: James P. Porter, Allan M. Judd Collaborator. January 1, 2002-December 23, 2004. American Heart Association. Total Amount Awarded \$120,000.

Hypothalamic -pituitary-adrenal axis: Regulation by cytokines and role in development. January 1, 2003- June 30, 2004. BYU Mentoring Environment Grant. \$15,691.

Hypothalamic -pituitary-adrenal axis: Regulation by bacterial and viral products and role in development of blood pressure regulation. PI: Allan M. Judd, James P. Porter Co-PI. Mentoring Environment Grant BYU. Submitted November of 2003. April 2004-March 2005. Total funded \$20,000.

Mechanisms Involved in Cytokine Regulation of StAR Expression and Cortisol Secretion. PI: Allan M. Judd, James P. Porter Co-PI. Mentoring Environment Grant BYU. April 2005-March 2006. Total funded \$15,000.

Mechanisms Involved in Interleukin-6 Regulation of Cortisol Secretion. PI: Allan M. Judd, James P. Porter Co-PI. Mentoring Environment Grant BYU. April 2005-March 2006. Total funded \$16,170.

Action of phospholipase A2 on apoptotic cells. PI: John D. Bell, Allan M. Judd Co-investigator. Submitted June 2004 to NIH. July 2005-June 2009. Total funded \$225,000 direct costs.

CURRICULUM VITAE

Marek J. Kaliszewski

Sources:

<https://he.billiongraves.com/grave/Marek-J-Kaliszewski/21333>

<http://www.deseretnews.com/article/253451/3-KILLED-4-HURT-IN-CRASHES-ON-CANYON-ROADS.html?pg=all>

Google searches for Kaliszewski MJ publications and Kaliszewski MJ Acarology

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: 6 Aug 1954

Death: 14 October 1992, Provo, Utah (Automobile Accident, Provo Canyon)

Note: A new species of mite was named in honor of Dr. Kaliszewski after his untimely death.
Błoszyk J and Szymkowiak P. *Trachytes kaliszewskii*, N. Sp. (Acari:Uropodina) from the Great Basin (Utah, USA), with remarks on the habitats and distribution of the members of the genus *Trachytes*. *Great Basin Naturalist* 56:59-72, 1996.

Education:

MS, Department of Animal Taxonomy and Ecology, A. Mickiewicz University, 1977

PhD, Department of Animal Taxonomy and Ecology, A. Mickiewicz University, 1981

Employment:

Faculty Member, Department of Zoology, Brigham Young University, 1989-1992

Teaching:

Systematic Zoology

Medical Entomology

Publications:

Niedbała W, Błaszak Cz, Błoszyk J, Kaliszewski M, Kaźmierski A. Roztocze (Acari). *Fragmenta Faunistica* 26: 1-52, 1981.

Niedbała W, Błaszak Cz, Błoszyk J, Kaliszewski M, Kaźmierski A. Soil mites (Acari) of Warsaw and Mazovia. *Memorabilia Zoologica* 36: 235-252, 1982.

Kaliszewski M. *Tarsonemus onchus* n.sp. and *Tarsonemus occultus* n.sp. (Acari, Heterostigmae) from Poland - *Bulletin de la Société des Amis des Sciences et des Lettres de Poznań, Ser. D Sci Biol* 23: 183-194, 1983.

Kaliszewski, M. Individual variation in wild and laboratory reared specimens of *Tarsonemus nodosus* Schaarschmidt, 1959 (Acari: Tarsonemidae) - *Folia Entomologica Hungarica (N.S.)* 44 (1): 63-81, 1983.

Kaliszewski M. 1985: *Tarsonemus elbrusi* sp.nov. (Acari: Heterostigmae), a new species of the genus *Tarsonemus* Canestrini et Fanzago from the Caucasus - *Acarologia* (Paris) 26: 239-251, 1985

Kaliszewski M. *Diroptes* gen.n. (Acari, Pygmephoroidae) with a key to the species - *Entomologische Mitteilungen aus dem Zoologischen Museum Hamburg* 9 (132): 115-122, 1988.

Błoszyk J, Chojnacki I, and Kaliszewski M. Study on the mites of the genus *Trachytes* Michael, 1894. I. Seasonal population changes of *Trachytes aegrota* (Koch, 1841) in deciduous reserves "Jakubowa" and "Las Gradowy" near Pniewy, Poland. In Griffiths DA and Bowman CE (eds), *Acarology* VI 2:893-900, 1984.

Cross EA, and Kaleszewski. The life history of a mushroom pest mite, *Pediculaster flechtmani* (Wicht) (Acari: Pygmephoroidae), with studies of alternate morph formation. *Environ Entomol* 17:309-315, 1988.

Christiansen KM, Colwell RK, and Kaliszewski MJ. Cellulose acetate electrophoretic technique for the genetic analysis of individual ascid mites (Mesostigmata: Ascidae). *Int J Acarology* 18:97-105, 1992.

Tobolewski J, Kaliszewski MJ, Colwell RK, and Oliver JH. Detection and identification of mammalian DNA from the gut of museum specimens of ticks. *J Med Entomol* 29:1049-1051, 1992.

Bruce WA, Kethley JB, and Kaliszewski MJ. Morphology of the gnathosoma of *Pyemotes tritici*: Cheliceral stylets and an associated cheliceral structure (Acari: Pyemotidae). *Internat J Acarology* 19:127-136, 1993.

Kaliszewski, Marek. Key to the Palearctic species of the genus *Tarsonemus* Acari, Tarsonemidae - *Uniw.A.Mickiewicza Pozn.Ser. Zool.* 14: 1-204, 1993.

Kaliszewski M, Athias-Binche F, Lindquist EE. Parasitism and parasitoidism in Tarsonemina (Acari: Heterostigmata) and evolutionary considerations. *Adv Parasitol* 35:335-367, 1995.

COMPREHENSIVE - CURRICULUM VITAE

EDWIN DOUGLAS LEPHART

EDUCATION

Ph.D. Physiology, The University of Texas Southwestern Medical Center, Dallas, Texas, 1989

M.S. Experimental Psychology, Brigham Young University, Provo, Utah, 1982

B.S. Psychology, Brigham Young University, Provo, Utah, 1979

EXPERIENCE

2012-2014	Associate Chairman, Department of Physiology & Developmental Biology
2003-2014	Professor, Department of Physiology and Developmental Biology & The Neuroscience Center
2001-2002	President, Intermountain Chapter-Society for Neuroscience
1999-2005	Director- Neuroscience Center at BYU- undergraduate, graduate & research programs
1998-2002	Associate Professor, Department of Zoology, Neuroscience Center, Brigham Young University, Provo, Utah
1994-1997	Assistant Professor, Department of Zoology, Cellular Biology Division, Brigham Young University, Provo, Utah
1994	Assistant Professor, Department of Psychiatry, The University of Texas Southwestern Medical Center at Dallas, Dallas, Texas
1993	Research Fellow, Department of Internal Medicine, Division of Endocrinology and Metabolism, The University of Texas Southwestern Medical Center at Dallas, Dallas, Texas (Supervisors: Michael J. McPhaul, M.D., Jean D. Wilson, M.D.)
1992-1994	Instructor, Department of Molecular Biology, The University of Texas at Dallas, Richardson, Texas
1989-1993	Research Fellow in Reproductive Endocrinology (NCI & NIH), The Green Center for Reproductive Biology Sciences, The University of Texas Southwestern Medical Center at Dallas, Dallas, Texas (Supervisors: Jean D. Wilson, M.D., Evan R. Simpson, Ph.D.)
1989-1990	Lecturer, Human Physiology, The University of Texas Southwestern Medical Center at Dallas, Dallas, Texas
1985-1989	Medical Technologist, Clinical Chemistry, Parkland and Children's Hospital, Dallas, Texas
1985	Lecturer, Applied Physiology, The University of Texas Southwestern Medical Center at Dallas, Dallas, Texas
1984-1989	Predoctoral Fellow (NIH), Department of Physiology, The University of Texas Southwestern Medical Center at Dallas, Dallas, Texas (Supervisors: Sergio R. Ojeda, D.V.M., Jean D. Wilson, M.D., Evan R. Simpson, Ph.D. & Samuel McCann, M.D.)
1984-1985	Instructor, Medical Physiology Student Laboratory, The University of Texas Southwestern Medical Center at Dallas, Dallas, Texas (Supervisor: George Ordway, Ph.D.)

1983 Lecturer, Applied Physiology, The University of Oklahoma Health Science Center, Oklahoma City, Oklahoma

INSTRUCTION- current and past

Courses: (Undergraduate) Human⇒ Biology, Neurobiology, Behavioral Neuroscience, Advance Neuroscience, Anatomy & Neuroanatomy, Physiology; (Nursing School) Human⇒ Pathophysiology, (Graduate) Advance Topics of Neuroscience, Physiology; Neuroendocrinology & Reproductive Endocrinology

PROFESSIONAL ORGANIZATIONS

Society of Cosmetic Chemists-member
American Association of Pharmaceutical Scientists-member
American Academy of Anti-Aging Medicine-member

AWARDS

Sigma Xi - The Scientific Research Society

Outstanding Thesis In The College of Social Sciences:

The Effects of Prenatal Stress on Fetal Growth, Development and Placental Transport of 2-Deoxy-D-[³H]-Glucose in the Rat. Brigham Young University, December 1982

National Science Foundation- Early Career Award, 1995-2000

Department of Zoology – Faculty: Outstanding Service and Achievement Award, 1996-97, Brigham Young University, December 1997, stipend

College of Biology and Agriculture- Professorship, 2000, Brigham Young University (one-year professorship; salary and research stipend)

College of Biology and Agriculture-Thomas Martin Professorship, 2002-2005, Brigham Young University (three-year professorship; salary and research stipend)

BYU University Fellowship- John A. Widtsoe Fellowship, 2004-2005, Brigham Young University (two-year professorship, salary and research stipend)

BYU University Research Award-Karl G. Maeser, 2007, Brigham Young University, stipend

College of Life Science Research Achievement Award, 2007, Brigham Young University, stipend

Department of Physiology and Developmental Biology – Faculty: Outstanding Service and Achievement Award, 2011-2012, Brigham Young University, December 2012, stipend

PROFESSIONAL RESEARCH INTERESTS

Regulation of Estrogen Production via Aromatase Cytochrome P450

Biochemistry, Molecular Biology and Endocrinology of 5 α -Reductase

Main Research Interest: Polyphenols/Phytoestrogens: Anti-aging, Neuro-Endocrine, Metabolism & Behavioral Influences

REFERENCES

1. Mike Alder, Director- Technology Transfer Office, Brigham Young University, Provo, Utah 84602, (801) 422-6266, email: Mike_Alder@byu.edu
2. Michael Stark, PhD, Professor, Department of Physiology and Developmental Biology, Brigham Young University, Provo, Utah 84602. (801) 422-9498, email: Michael_Stark@byu.edu
3. Trent D. Lund, PhD, President, Stoelting Co., 620 Wheat Lane, Wood Dale, IL 60191 (630) 860-9700, email: Trent@StoeltingCo.com
4. James P. Porter, PhD, Dean- College of Life Sciences, Brigham Young University, Provo, Utah 84602, (801) 422-9160, email: James_Porter@byu.edu

JOURNAL – EDITORIAL BOARD

Member/Advisor- Reproductive Biology and Endocrinology 2002-2010

JOURNAL- EDITORIAL REVIEW (sample/subset)

American Journal of Clinical Nutrition
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Brain Research Bulletin
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European Journal of Pharmacology
Hormones & Behavior
Gynecological Endocrinology
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Journal of Clinical Endocrinology and Metabolism
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Journal of Neuroscience
Journal of Experimental Zoology
Journal of Society for Gynecologic Investigation

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Neuroscience Letters
Neurotoxicology and Teratology
Pharmaceutical Biology
Pharmacology, Biochemistry and Behavior
Physiology and Behavior
Royal Society (London) Science
Trends in Neuroscience

NATIONAL AND INTERNATIONAL GRANT REVIEW/EVALUATION:

**NATIONAL SCIENCE FOUNDATION (WASHINGTON, D.C., USA)-
1995-1999**

**MEDICAL RESEARCH COUNCIL (LONDON, ENGLAND)-
1997-1999, 2001**

**NATIONAL INSTITUTES OF ENVIRONMENTAL HEALTH SCIENCES –
1999**

THE ISRAEL SCIENCE FOUNDATION (JERUSALEM, ISRAEL) – 2000

USDA- external review – 2001 – 2005

**External Reviewer: Yale University, Women's Health Research, School
of Medicine, New Haven, CT, July 2008**

RESEARCH GRANTS

1994-2001

BYU COLLEGE OF BIOLOGY (PDC) PROFESSIONAL DEVELOPMENT

PI: Edwin D. Lephart Brain Aromatase and 5 α -Reductase During
Prenatal and Postnatal Development, Sept. 1994 \Rightarrow Aug. 2001:
Grant # 2-62851 **Total Direct Costs: \$ 19,600.00**

1995-2001

NATIONAL SCIENCE FOUNDATION

PI: Edwin D. Lephart Brain Aromatase Cytochrome P-450 and CNS
Development, Jul. 1995 \Rightarrow Jun. 2001: Grant # IBN-9507972
Total Direct Costs: \$ 458,000.00

1996-97

NATIONAL SCIENCE FOUNDATION

PI: Edwin D. Lephart Brain Aromatase Cytochrome P-450 and CNS Development (REU-SUPPLEMENT) Jul. 1995 ⇒ Jun. 1996: Grant # IBN-9507972

Total Direct Costs: \$ 13,300.00

1998

BYU Research Office/Bio-Aq and Social Sci College Support

PI: Edwin D. Lephart Establishment of a Neuroscience Center at BYU March 1998 ⇒ March 1999:

Total Direct Costs: \$ 80,000.00

1999

BYU Research Office/Bio-Aq and Social Sci College Support

PI: Edwin D. Lephart Neuroscience Center at BYU

February 1999 ⇒ December 1999:

Total Direct Costs: \$ 31,000.00

NATIONAL SCIENCE FOUNDATION

PI: Edwin D. Lephart REU Site for Undergraduates in Neuroscience May 2000 ⇒ August 2003: Grant # DBI – 9912126

Total Direct Costs: \$ 174,000.00

BYU Research Office

PI: Edwin D. Lephart Neuroscience Center at BYU-undergraduate research January 2001 ⇒ December 2001:

Total Direct Costs: \$ 34,650.00

2001

BYU Research Office

PI: Edwin D. Lephart Neuroscience Center at BYU-undergraduate research January 2002 ⇒ December 2002:

Total Direct Costs: \$ 31,500.00

2002

UNITED STATES DEPARTMENT OF AGRICULTURE (USDA)

PI: Edwin D. Lephart Neuroendocrine and Metabolic Disruption by Dietary Soy-Derived Phytoestrogens

Sept 2002 ⇒ August 2005: Grant # 2002-00798

Total Direct Costs: \$ 168,000.00

2004

BYU TECHNOLOGY TRANSFER OFFICE

PI: Edwin D. Lephart Equol Technology

Jan 2004 ⇒ Dec 2004: Grant # 19-223566

Total Direct Costs: \$ 24,000.00

UNITED STATES DEPARTMENT OF AGRICULTURE (USDA)

PI: Edwin D. Lephart The Central Nervous System, Aging & Behavior: Influence of Dietary Soy Phytoestrogens

Dec 2004 ⇒ July 2009: Grant # 2004-01811

Total Direct Costs: \$ 400,000.00

BYU RESEARCH OFFICE

PI: Edwin D. Lephart John A. Widtsoe Fellowship

Sept 2004 ⇒ August 2006: Grant # 19-224568

Total Direct Costs: \$ 20,000.00

NATIONAL INSTITUTES OF HEALTH (NIH)

PI: Merrill Christensen Selenium, Isoflavones and Prostate Cancer Risk

Apr 2004 ⇒ Mar 2006: Grant # NIH 1 R15 CA 106374-01

Total Direct Costs: \$ 150,000.00

Co-PI: Edwin D. Lephart percent effort 10 %

2006

NATIONAL INSTITUTES OF HEALTH (NIH)

PI: Merrill Christensen Selenium, Isoflavones and Prostate Cancer Risk
Renewal

Apr 2006 ⇒ Mar 2008: Grant # 1R15CA122235-01A1

Total Direct Costs: \$ 150,000.00

Co-PI: Edwin D. Lephart percent effort 15 %

2008

BYU RESEARCH OFFICE

PI: Edwin D. Lephart Mentoring (Phytoestrogen) Research
March 2008 ⇒ December 2009: Grant # 20-223610-137
Total Direct Costs: \$ 20,000.00

BYU TECHNOLOGY/ LSCOLLEGE OFFICE

PI: Edwin D. Lephart Phytoestrogen Technology/Research
April 2008 ⇒ unrestricted funds: Grant # 20-223610-307
Total Direct Costs: \$ 18,850.00

2009

BYU RESEARCH OFFICE

PI: Edwin D. Lephart Crocker Ventures Resveratrol
July 2009 ⇒ June 2010: Grant # R0602289
Total Direct Costs: \$ 100,000.00

BYU TECHNOLOGY/ LSCOLLEGE OFFICE

PI: Edwin D. Lephart Phytoestrogen Technology/Research
Jan-Dec 2009 ⇒ unrestricted funds: Grant # 20-223610-307 and
192215-
Total Direct Costs: \$ 36,500.00

2010

BYU TECHNOLOGY/ LSCOLLEGE OFFICE

PI: Edwin D. Lephart Polyphenolic Technology/Research
Jan - Dec 2010 ⇒ # 19-22-15
Total Direct Costs: \$157,000

NATIONAL INSTITUTES OF HEALTH (NIH) (NCCAM)

PD/PI: Merrill Christensen and Edwin Lephart
Timing of Exposure to Selenium and Isoflavones and Prostate Cancer Prevention
April 2010 ⇒ March 2014: Grant # 1R15 CA141385-01A10
Total Direct Costs: \$ 150,000.0

2011-2014

BYU TECHNOLOGY/ LSCOLLEGE OFFICE

PI: Edwin D. Lephart Polyphenolic Technology/Research
Jan - Dec ⇒ present # 19-22-15
Total Direct Costs: \$160,180

approx. total direct costs \$ 2,305,000.00

Graduate Committees

	Name	Chair or Member	M.S. or Ph.D.	Date-Completion
1.	Adrian Hutbert	Member	Ph.D.	August 1996
2.	David Ladle	Chair	M.S.	June 1997
3.	Nathan Jacobson	Chair	M.S.	June 1997
4.	Aaron Starbuck	Chair	Honors	August 1999
5.	Emily Brinton	Chair	Honors	August 1999
6.	Jianfeng Zhu	Member	Ph.D.	August 2001
7.	Trent Lund	Member	M.S.	December 1999
8.	Scott Weber	Chair	M.S.	August 2000
9.	David Salyer	Member	M.S.	December 1999
10.	Emily Stuart	Chair	M.S.	December 2000
11.	Trent Lund	Member	Ph.D.	August 2000
12.	Jacob Ong	Chair	Honors	August 2001
13.	Christy W. Spackman	Chair	Honors	August 2001
14.	Amy Curtis	Chair	Honors	August 2001
15.	Shawn Crook	Member	M.S.	August 2001
16.	Li Hong Bu	Chair	Ph.D.	August 2005
17.	Vivek Ramakrishnan	Member	Ph.D.	December 2002
18.	Naomi Hunshaker	Member	Ph.D.	August 2009
19.	Russell Legg	Member	M.S.	August 2007
20.	Kimberly Fabick	Chair	M.S.	August 2008
21.	Crystal Blake	Chair	M.S.	August 2008
22.	Trevor Quiner	Member	M.S.	June 2010
23.	Crystal Blake	Chair	Ph.D.	August 2010

Department (D), College (C) and University (U) Committees

Undergraduate Research Trainee- Supervisor- College of Education, 1994-2001 (D, C)
 Self-Study Evaluation, Department of Zoology - Member, co-author- Data Analysis/Statistical Profile Section, 28-1 through 28-16, 1994-95 (D,U)
 Adam Computer Program evaluation -Member, for Human Anatomy, Zool 260- 1994-95 (D); Chaired by Dr. Mark Nielson, Department of Biology, University of Utah, SLC, UT (U)
 Coordinator- Zoology/Cellular Biology Division Seminars, 1995 (D)
 Zoology Department Seminar Coordinator-1995-1997 (D)
 Reviewer for the Zoology Graduate Research Fellowship Awards- 1995-96 (D)
 Bio-Ag College Symposium Committee Member-1995-1997 (C)
 Strengthening the Students Committee-Member-1996-1997 (D)
 Chairman- Curriculum and Catalog Committee-1997-1998 (D)
 Endowment Chairman-1999-2001 (D)
 Department Physiology/Developmental Biology, Seminar Coordinator-2001-2003 (D)
 Department Physiology/Developmental Biology, Funding Comm. Member-2005- (D)
 Department Physiology/Developmental Biology, Research Comm.Chair-2006-2014 (D)
 Associate Chairman-PDBio (research/finance) 2012-2014 (D)
 Member-Life Sciences College, Funding Committee-2016- (C)

ABSTRACTS PRESENTED AT INTERNATIONAL MEETINGS

1. **Lephart, E.D.** and S.R. Ojeda. Developmental Regulation of Hypothalamic and Pituitary Aromatase Activity in the Male Rat. Ann. Mtg. Neuroscience, Toronto, Canada, 1988.
2. **Lephart, E.D.**, R.W. Rhee and D.E. Fleming. Alterations in Maternal Regulatory Behaviors and Placental Transport in Environmentally Stressed Rats. Ann. Mtg. Am. Soc. Zoologists, San Francisco, CA, 1988.
3. **Lephart, E.D.** Prenatal Hypothalamic Aromatase Activity in Organotypic Cultures. Ann. Mtg. Endocrine Soc., Seattle, WA, 1989.
4. **Lephart, E.D.**, S.R. Ojeda, E.R. Simpson, J.D. Wilson and M.J. McPhaul. Detection of Brain Aromatase P-450 Messenger Ribonucleic Acid: Comparison to Aromatase Activity During Prenatal Development in the Rat. Sero Symposium, USA, Neuroendocrine Regulation of Reproduction, Napa, CA, 1989.
5. Doody, K.J., **E.D. Lephart**, D. Stirling, M.C. Lorence, J.I. Mason, R.R. Magness and E.R. Simpson. Expression of mRNA Species Encoding Steroidogenic Enzymes in Rat Ovaries. Ann. Prog. Soc. Gynecologic Investigation, San Antonio, TX, 1990.
6. Trzeciak, W.H., **E.D. Lephart**, S. Andersson and E.R. Simpson. 5 α -Reductase mRNA and Content and Enzyme Activity in Rat Adrenal are Sex Hormone Dependent. Ann. Mtg. Adrenal Cortex, Atlanta, GA, 1990.
7. **Lephart, E.D.** and E.R. Simpson. Detection of Brain Messenger Ribonucleic Acid Encoding Aromatase Cytochrome P-450 and 5 α -Reductase: Comparison to Aromatase and 5 α -Reductase Activities During Prenatal Development in the Rat. Ann. Mtg. Endocrine Soc., Atlanta, GA, 1990.
8. Corbin, C.J., **E.D. Lephart**, M.J. McPhaul, K.J. Doody and E.R. Simpson. Isolation of a Full-Length cDNA Insert and Genomic DNA Encoding Rat Aromatase Cytochrome P-450. International Symposium on Microsomes and Drug Oxidations, Stockholm, Sweden, 1990.
9. **Lephart, E.D.** and K.J. Doody. Inverse Relationship Between Ovarian Aromatase Cytochrome P-450 and 5 α -Reductase Enzyme Activities and mRNA Levels During the Estrous Cycle in the Rat. Ann. Mtg. Endocrine Soc., Washington, D.C., 1991.

ABSTRACTS PRESENTED AT INTERNATIONAL MEETINGS

10. Sanghera, M., E.R. Simpson and **E.D. Lephart**. Immunocytochemical Distribution of Aromatase in the Rat Brain using Synthetic Peptide-Generated Polyclonal Antibodies. Ann. Mtg. Endocrine Soc., Washington, D.C., 1991.
11. **Lephart, E.D.**, D. Husmann and E.R. Simpson. Inhibition of Brain, but not Pituitary, 5 α -Reductase Activity by MK-906 in Male Rats - Comparison with the Anti-androgen Flutamide and Exogenous Dihydrotestosterone Treatment. Soc. For The Study of Reproduction, Vancouver, British Columbia, 1991.
12. **Lephart, E.D.**, M.J. McPhaul and E.R. Simpson. Ovarian Aromatase Cytochrome P-450 mRNA Correlates with Enzyme Activity and Serum Estradiol Levels in Anestrous, Pregnant and Lactating Rats. Serono Symposia, USA, Molecular Basis of Reproductive Endocrinology, Vancouver, British Columbia, 1991.
13. Husmann, D. and **E.D. Lephart**. Establishment of an Animal Model to Investigate the effect of Brain and Pituitary 5 α -Reductase Activity on Neural Development and Sexual Behavior. Ann. Mtg. American Academy of Pediatrics, Toronto, Canada, 1991.
14. Herbst, M.A. and **E.D. Lephart**. Promoter Characterization of Aromatase Cytochrome P-450 Gene expression in Rat Ovary, a Rat Leydig Tumor Cell Line and Fetal Rat Brain Tissue. Ann. Mtg. Endocrine Soc., San Antonio, TX, 1992.
15. **Lephart, E.D.**, M.J. McPhaul, J.D., Wilson, M.W. Kilgore, S.R. Ojeda and E.R. Simpson. Divergence Between Cytochrome P450 Brain Aromatase mRNA Levels and Enzymatic Activity During Perinatal Development. The Third International Conference on Aromatase, Bologna, Italy, 1992.
16. M.J. McPhaul, M.A. Herbst, M. Young and **E.D. Lephart** and J.D. Wilson. Diverse Mechanisms of Control of Aromatase Gene Expression. The Third International Conference on Aromatase, Bologna, Italy, 1992.
17. **Lephart, E.D.**, M.A. Herbst, E.R. Simpson and M.J. McPhaul. Promoter Characterization of Aromatase Cytochrome P-450 Gene Expression in Rat Ovary, Fetal Brain, and a Leydig Tumor Cell Line: Evidence for the Existence of Brain Specific Aromatase Transcripts. Ann. Mtg. Experimental Biology, FASEB, New Orleans, Louisiana, 1993.
18. Roselli, C.E., S.E. Abelgadir, **E.D. Lephart**, M.J. McPhaul and J.A. Resko. Androgens Regulate Aromatase Cytochrome P450 mRNA in Rat Brain. Ann. Mtg. Soc. Neuroscience, Washington, D.C., 1993.

ABSTRACTS PRESENTED AT INTERNATIONAL MEETINGS

19. **Lephart, E.D.** Age-Related Changes in Brain and Pituitary 5 α -Reductase Enzyme. Finasteride Blocks the Activity in Young Adults but not Juvenile or Peripubertal Male Rats. The Pittsburgh Conf., Chicago, IL, 1994.
20. **Lephart, E.D.** Finasteride Inhibits Brain and Pituitary 5 α -Reductase Activity in Young Adults but not Juvenile or Peripubertal Male Rats. FASEB, Experimental Biology, Anaheim, CA, 1994.
21. M. Young, M.J. McPhaul and **E.D. Lephart.** The Expression of Aromatase Cytochrome P-450 in Rat H540 Leydig Tumor Cells. Ann. Mtg. Endocrine Soc., Anaheim, CA, 1994.
22. **Lephart, E.D.** and M.J. McPhaul. Characterization of Aromatase Cytochrome P-450 in Rat Perinatal Brain, Ovary, and a Leydig Cell Line: Evidence for the Existence of Brain Specific Aromatase Transcripts. IX International Congress on Hormonal Steroids, Dallas, TX, 1994
23. **Lephart, E.D.,** M.A. Herbst and M.J. McPhaul. Brain Aromatase Cytochrome P-450 mRNA Transcripts Are Derived From a Different Promoter Compared to Rat Ovary or a Rat Leydig Tumor Cell Line. Society For Neuroscience. Miami, FL, 1994.
24. **Lephart, E.D.,** R.W. Rhees. Frontal Cortical Brain Aromatase Enzyme Activity in Male and Female Rats During Perinatal Development. Society For Neuroscience. San Diego, CA., 1995.
25. A. McMahon, **E.D. Lephart,** C.L. Liang, D.C. German. PC12 Cells, Transfected With Calbindin-D_{28k} cDNA, Are Protected From Degeneration Caused By Serum Withdrawal. Society For Neuroscience. San Diego, CA., 1995.
26. **Lephart, E.D.** Ontogeny Of A Calcium-Binding Protein, Calbindin-D_{28K} In Medial Basal Hypothalamic (MBH)-Preoptic Area (POA) And Amygdaloid (AMY) Tissue In Male And Female Rats. Fourth National Parkinson Foundation International Symposium On Parkinson Research. San Diego, CA., 1995.
27. **Lephart, E.D.,** D.R. Ladle, N.A. Jacobson. Characterization of Brain Aromatase Enzyme Activity In Pregnant, Aged Female, Ovariectomized/Adrenalectomized and Random Cycling Rats. IV International Aromatase Conference. Tahoe City, CA., 1996.

ABSTRACTS PRESENTED AT INTERNATIONAL MEETINGS

28. **Lephart, E.D.**, D.R. Ladle, N.A. Jacobson, R.W. Rhees. Inhibition of Brain 5 α -Reductase In Pregnant Rats. Effects On Enzymatic And Behavioral Activity. International Mtg. For The Society of International Endocrinology Congress and Endocrine Society. San Francisco, CA. 1996.
29. **Lephart, E.D.** Molecular and Enzymatic Characterization of Brain Aromatase Cytochrome P-450. The National Science Foundation. Arlington, VA 1996.
30. **Lephart, E.D.**, D.R. Ladle, N.A. Jacobson. Dimorphic Expression of Calretinin in the Medial Basal Hypothalamus from Perinatal Male and Female Rats. Society For Neuroscience, Washington, D.C., 1996.
31. R.W. Rhees, S.W. Davis, N.A. Jacobson, D.R. Ladle, **E.D. Lephart**. Effects of Stress During Pregnancy on Maternal and Fetal Medial Basal Hypothalamic (MBH) 5 α -Reductase and Aromatase Activity. Society For Neuroscience, Washington, D.C., 1996.
32. G.J. Bloch, P. Bulter, R. Mills, N.A. Jacobson, D.R. Ladle **E.D. Lephart**. Differential Expression of Brain Aromatase in Castrated Ablino and Pigmented Rats. Annual Mtg. of The Endocrine Society, Minneapolis, Minnesota, June 11-14, 1997.
33. Ladle, D.R., N.A. Jacobson, **E.D. Lephart**. Ontogeny of Brain Aromatase and 5 α -Reductase Activity in the Amygdala of Perinatal Rats. Annual Mtg. of The Endocrine Society, Minneapolis, Minnesota, June 11-14, 1997.
34. Rhees, R.W., M.A. Watson, N.A. Jacobson, D.R. Ladle, **E.D. Lephart**. Calbindin-D_{28K} Is Regulated By Adrenal Steroids In Hypothalamic Tissue During Prenatal Development. XXXIII International Congress of Physiological Sciences, St. Petersburg, Russia, June 30-July 5, 1997.
35. Mathias, L., R.W. Rhees, N.A. Jacobson, D.R. Ladle, **E.D. Lephart**. Brain Aromatase Activity In Different Strains of Castrated And Intact Male Rats. Annual Mtg. of The Society For Neuroscience. New Orleans, LA., Oct. 25-30, 1997.
36. **Lephart, E.D.**, M.A. Watson, L. Mathias, R.W. Rhees, S. Diano, T.L. Horvath. Co-Localization Of Aromatase Cytochrome P450 And Calbindin-D_{28K} and Androgen Regulation Of Calbindin-D_{28K} During Perinatal Development. Annual Mtg. of The Society For Neuroscience. New Orleans, LA., Oct., 25-30, 1997

ABSTRACTS PRESENTED AT INTERNATIONAL MEETINGS

37. **Lephart, E.D.**, H. Taylor, M.A. Watson. Characterization of the Calcium-Binding Proteins, Calbindin-D28k and Calretinin in Medial Basal Hypothalamic Tissue In Male Rats During Postnatal Development. Fifth National Parkinson Foundation International Symposium On Parkinson Research. New Orleans, L.A., Oct. 23-24, 1997.
38. **Lephart, E.D.** The Role of Phytoestrogens in Health and Disease. NIH/NIEHS Conference on Estrogens In The Environment IV, Washington, D.C., July 17-20, 1997.
39. **Lephart, E.D.** The Influence of Human Infant Formulas Containing Phytoestrogens On Brain Aromatase Activity In Adult Rats. Symposium on Phytoestrogen Research Methods, Tucson, Arizona, Sept. 21-24, 1997.
40. **Lephart, E.D.** The Effects Of Feeding Adult Rats Human Infant Formulas Containing Phytoestrogens On Brain Aromatase Activity. Conference on Human Diet and Endocrine Modulation, Estrogenic and Androgenic Effects, Fairfax, Virginia, Nov. 19-21, 1997.
41. Weber, S.K, N.A. Jacobson and **E.D. Lephart**. Brain Aromatase in Adult Rats on Phytoestrogen Diets and Human Infant Formulas Containing Phytoestrogens. Xth International Congress on Hormonal Steroids, Quebec City, Canada, June 17-21, 1998.
42. L. Mathias, N.A. Jacobson, R.W. Rhee and **E.D. Lephart**. Brain Aromatase in Castrated Norway Brown, Wistar and Flutamide-Treated Sprague-Dawley Adult Male Rats. Xth International Congress on Hormonal Steroids, Quebec City, Canada, June 17-21, 1998.
43. **Lephart, E.D.** and R.W. Rhee. The Effects of Maternal Separation During Early Postnatal Development on Brain Calbindin-D_{28K} and Calretinin Levels, Male Sexual Behavior and Female Reproductive Function. 1998 Neuroendocrine Workshop, New Orleans, LA., June 21-23, 1998.
44. **Lephart, E.D.**, H. Taylor, N.A. Jacobson and M.A. Watson. Brain Calbindin-D_{28K} and Calretinin in Male Rats During Postnatal Development. 1998. Annual Mtg. Society For Neuroscience, Los Angeles, CA., Nov., 7-12, 1998.
45. Taylor, H and **E.D. Lephart**. Alterations In Fetal Hypothalamic-Preoptic Area Calbindin From Rats Fed Phytoestrogen Diets During Gestation. 1999 AAAS Annual Mtg., Anaheim, CA, Jan., 21-26, 1999.

ABSTRACTS PRESENTED AT INTERNATIONAL MEETINGS

46. **Lephart, E.D.**, K.D. Setchell and K. S. Weber. 1999. Dietary Phytoestrogens Decrease Prostate Weight, Plasma Testosterone Levels and Alter Brain 5 α -Reductase in Adult Sprague-Dawley Rats. International Conference on Diet and Prevention of Cancer. Tampere, Finland, May 28-June 2, 1999.
47. K. S. Weber, K.D. Setchell and **E.D. Lephart**. 1999. Short-term consumption of dietary phytoestrogens in adult male rats reduces reproductive organ weight and testosterone levels. Neuroendocrine Workshop Annual Mtg., San Diego, CA., June, 9-11, 1999.
48. **Lephart, E.D.**, K.D. Setchell and K. S. Weber. 1999. Phytoestrogens Alter Reproductive Function, Brain and Prostate 5 α -Reductase in Adult Sprague-Dawley Rats. Annual Mtg. Endocrine Soc., San Diego, CA., June 14-17, 1999.
49. Rhees, R.W., **E.D. Lephart**, S.B. Call, N.A. Jacobson, J. Bledsoe and C. Teuscher. 1999. Divergent SDN Structure and Brain Aromatase, Neuroendocrine Function and Mating Behavior in Noble vs. Wistar Male Rats. Annual Mtg. Soc. Behavioral Neuroendocrinology, Charlottesville, VA., June 26-30, 1999.
50. Brinton, E., N.A. Jacobson and **E.D. Lephart**. 1999. Dimorphic Expression of MBH-POA Calbindin mRNA Levels During Perinatal Development and Adult Brain Tissue Distribution of Calbindin mRNA in Rats. Annual Mtg. Soc. For Neuroscience, Miami Beach, FL., October 23-28, 1999.
51. Weber, K. S., K.D. Setchell and **E.D. Lephart**. 1999. Male and Female Perinatal or Maternal Brain Aromatase is not altered by Dietary Phytoestrogens. Annual Mtg. Soc. For Neuroscience, Miami Beach, FL., October 23-28, 1999.
52. Salyer, D.L., T.D. Lund, **E.D. Lephart** and D.E. Fleming. 1999. The Effects of Prenatal Administration of Testosterone and Flutamide on Retinal Thickness. Annual Mtg. Soc. For Neuroscience, Miami Beach, FL., October 23-28, 1999.
53. T.D. Lund, D.L. Salyer, D.E. Fleming, **E.D. Lephart** and E.D. Bigler. 1999. The Sexually Dimorphic Nucleus of the Medial Preoptic Area (SDN) as Effected by the Prenatal Administration of Flutamide and Testosterone. Annual Mtg. Soc. For Neuroscience, Miami Beach, FL., October 23-28, 1999.
54. **E.D. Lephart**, K.D. Setchell, H. Adlercreutz and K.S. Weber. 1999. Dietary Soy-Phytoestrogens Decrease Brain Calcium-Binding Proteins But Do Not Alter Androgen Metabolizing Enzymes in Adult Male Sprague-Dawley Rats. Soy Symposium, Washington, D.C., October 31-3rd November, 1999.

ABSTRACTS PRESENTED AT INTERNATIONAL MEETINGS

55. K.S. Weber, K. D. Setchell and **E.D. Lephart**. 2000. Transplacental and Maternal Milk passage of Dietary Phytoestrogens to Perinatal Rats: Lack of Alterations in Maternal or Perinatal Brain Aromatase Activity by Dietary Phytoestrogens. Annual Mtg. Endocrine Society, Toronto, CA, 21-24 June, 2000
56. K.S. Weber, K.D. Setchell, D.A. Stocco and **E.D. Lephart**. 2000. The effects of dietary phytoestrogens in adult male rats on: gonadotrophin levels, StAR activity and testosterone levels. Neuroendocrine Workshop Annual Mtg., Toronto, CA, 18-20 June, 2000.
57. T.D. Lund, T.W. West, D.E. Fleming, K.D.R. Setchell and **E.D. Lephart**. 2000. Dietary Phytoestrogens Decrease Prostate And Body Weights As Well As Alter Visual Spatial Memory (VSM) In Adult Long-Evans Rats (Enhance VSM In Females But Inhibit VSM In Males). 14th International Symposium of the Journal of Steroid Biochemistry & Molecular Biology. Quebec, Canada, June 24-27, 2000.
58. R.W. Rhees, E.B. Stuart and **E.D. Lephart**. 2000. Quantitative Study Of Steroid Hormones Influence On Brain Calbindin D28K Levels in Prepubertal Rats. Society For Behavioral Neuroendocrinology, Madrid, Spain, July, 2000.
59. T.D. Lund, T.W. West, D.E. Fleming, K.D.R. Setchell and **E.D. Lephart**. 2000. Dietary Phytoestrogens Enhance Visual Spatial Memory (VS) In Females (But Inhibit VSM In Males). Society For Neuroscience Annual Mtg., New Orleans, LA, Nov. 4-9, 2000.
60. E.B. Stuart, J.M. Thompson, R.W. Rhees and **E.D. Lephart**. 2000. Steroid Hormone Regulation Of Brain Calbindin-D28K Levels In Prepubertal And Adult Ovariectomized Rats. Society For Neuroscience Annual Mtg., New Orleans, LA, Nov. 4-9, 2000.
61. T.D. Lund, K.D.R. Setchell, R.W. Rhees and **E.D. Lephart**. 2000. Dietary Soy Phytoestrogens Alter SDN-POA Volumes in Adult Rats. NIEHS Symposium on Gender Differences in Reproductive Biology and Toxicology, Tucson, AZ, Nov. 9-11, 2000.
62. **E.D. Lephart**, R.Ward Rhees, K.D.R. Setchell and T.D. Lund. 2001. Dietary Soy Phytoestrogens Alter Sexually Dimorphic Hypothalamic Nuclei in Adult Rats. Experimental Biology 2001, Symposium on Brain Aging and Nutrition, Orlando, FL. March 31- April 4, 2001.
63. T.D. Lund, J.P. Porter and **E.D. Lephart**. 2001. Body weight and metabolic regulatory factors are influenced by dietary soy phytoestrogens. Annual Meeting of The Endocrine Society, Denver, CO. June 20-23, 2001.

ABSTRACTS PRESENTED AT INTERNATIONAL MEETINGS

64. **E.D. Lephart** and T.D. Lund. 2001. Dietary soy phytoestrogens produce anxiolytic effects in the elevated plus-maze. Annual Meeting of Neurobehavioral Teratology Society, Montreal, Canada, June 24-27, 2001.
65. **E.D. Lephart**, T.W. West, L.Y. Tian, L.H. Bu, D.L. Simmons, H. Adlercreutz and T.D. Lund. 2001. Neurobehavioral effects of dietary soy phytoestrogens I. Annual Meeting of the Society for Neuroscience, San Diego, CA, Nov. 10-15, 2001.
66. T.D. Lund, T.W. West, R.W. Rhee and **E.D. Lephart**. 2001. Neurobehavioral effects of dietary soy phytoestrogens II. Annual Meeting of the Society for Neuroscience, San Diego, CA, Nov. 10-15, 2001.
67. D.E. Fleming, D.L. Salyer, T.D. Lund, J.R. Dayton, J.F. Kingrey, T.E. Mann, T.T. Wright and **E.D. Lephart**. 2001. The effects of dietary soy phytoestrogens on retinal thickness in rats. Annual Meeting of the Society for Neuroscience, San Diego, CA, Nov. 10-15, 2001.
68. D.W. Hedges, D.L. Salyer, B.J. Higginbotham, T.D. Lund, J.L. Hellewell, D.B. Ferfuson, G.J. Boch, **E.D. Lephart**. 2001. Transcranial magnetic stimulation (TMS) effects on testosterone, prolactin, and corticosterone in adult male rats. Annual Meeting of the Society for Neuroscience, San Diego, CA, Nov. 10-15, 2001.
69. **E.D. Lephart**, J.P. Porter, L.H. Bu, W.R. Crowley, G. Ramoz, T.D. Lund. 2001. Cardiovascular and Metabolic Effects of Dietary Soy Phytoestrogens. 4th International Soy Symposium, San Diego, CA, Nov. 4-7, 2001.
70. **E.D. Lephart**, R.W. Rhee, T.W. West, L.Y. Tian, L.H. Bu, D.L. Simmons, K.D.R. Setchell, H. Adlercreutz, T.D. Lund. 2001. Effects of Dietary Soy Phytoestrogens on Brain Aromatase, Anxiety Behavior, Neural Structure and Memory. 4th International Soy Symposium, San Diego, CA, Nov. 4-7, 2001.
71. E. Galindo, L.H. Bu, L. Tian, **E.D. Lephart**. 2001. Dietary Phytoestrogen Effects on Pain Threshold, Stress Response and Brain NCAM and Synaptophysin in Male Long-Evans Rats. The 2nd Neurobiology of Aging Conference, San Diego, CA, Nov. 8-9, 2001.
72. **E. D. Lephart**, T.D. Lund, G. Ramos, W.R. Crowley. 2002. Soy-Derived Phytoestrogen Diets Alter NPY Levels and Food Intake Patterns. The Endocrine Society's 84th Annual Mtg., San Francisco, CA, June 19-21, 2002.
73. **E.D. Lephart**. 2002. Phytoestrogens: Brain Structure and Function. International Congress on Hormonal Steroids and Hormones and Cancer, Fukuoka, Japan, October, 21-25, 2002.

ABSTRACTS PRESENTED AT INTERNATIONAL MEETINGS

74. **E.D. Lephart**, R.W. Rhees, K.D.R. Setchell, T.D. Lund. 2002. Plasticity of Sexually Dimorphic Brain Volumes by Dietary Soy Phytoestrogens in Long-Evans Rats During Adulthood. Society for Neuroscience, 32nd Annual Mtg., Orlando, FL, November 2-6, 2002.
75. L.H. Bu and **E.D. Lephart**. 2003. Regulatory Behaviors, Core Body Temperature, Stress and Pain Response in OVX Long-Evans Rats on High vs. Low Phytoestrogen Diets. Endocrine Society's 85th Annual Mtg., Phila., PA, June 19-22, 2003.
76. J. Austin, L.H. Bu, B. Millet and **E.D. Lephart**. 2003. Metabolic and Neurological Effects of Dietary Soy Phytoestrogens in Female Long-Evans Rats. Endocrine Society's 85th Annual Mtg., Phila., PA, June 19-22, 2003.
77. L.H. Bu, R.W. Rhees and **E.D. Lephart**. 2003. Dietary Phytoestrogens Influences on Maternal Food/Water Intake, Body Temperature/Weight and Offspring Growth Parameters. Endocrine Society's 85th Annual Mtg., Phila., PA, June 19-22, 2003.
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Section Review

1. L.J. Lu, J.A. Tice, F.L. Bellino (**E.D. Lephart** - effects on cancers - section presentation/discussion leader). 2001 Phytoestrogens and healthy aging: gaps in knowledge-An NIH workshop report. *Menopause* 8:157-170.

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8. **Lephart, E.D.** 2015. Chapter 2, Skin Aging, Facial Wrinkles and Cosmeceuticals. Equol: A Botanical Active Ingredient for Human Skin Anti-aging, pp 27-54, In: ***Skin Aging and Photoaging: Physiology, Clinical Aspects and Emerging Therapies***, E. Graham, ed., *Nova Biomedical Science Publishers, Inc.*, Hauppauge, NY, USA, ISBN 978-1-63482-923-6

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2. 5 α -Reductase Enzyme Activity and mRNA Content in Adrenal, Ovary and Brain. Department of Zoology, **Brigham Young University**. Provo, UT., November 7, 1991.
3. Neural Cytochrome P-450 Aromatase and Sexual Differentiation of the Brain. Psychology Forum, **Brigham Young University**. Provo, UT., November 7, 1991.
4. Aromatase and 5 α -Reductase Studies in the Rat. **Proctor and Gamble Research Laboratories**. Cincinnati, OH., April 6, 1992.
5. Brain Aromatase: Location and Molecular Biology Studies. Department of Obstetrics and Gynecology, **Yale Medical School**. New Haven, CT., September 4, 1992.
6. Aromatase Cytochrome P-450 and the Sexual Differentiation of the Brain: Localization, Regulation and Molecular Biology Studies. Department of Cell Biology and Anatomy, **Texas Tech Medical School**. Lubbock, TX., October 19, 1992.
7. Molecular Biology Studies on Brain 5 α -Reductase and Cytochrome P-450 Aromatase. Department of Pharmacology, **The University of Pittsburgh School of Medicine**. Pittsburgh, PA., March 19, 1993.
8. Sexual Differentiation of the Brain: Current Studies on 5 α -Reductase and Aromatase. Department of Zoology, **The University of Texas at Austin**. Austin, TX., March 26, 1993.
9. Molecular Biology Studies on Androgen Metabolism by Cytochrome P-450 and 5 α -Reductase. Comprehensive Cancer Center, Arthur G. James Cancer Hospital and Research Institute, **The Ohio State University School of Medicine**. Columbus, OH., August 5, 1993.
10. Psychotropic Sex Steroids and CNS Differentiation. Department of Psychology, **Michigan State University**. East Lansing, MI., January 24, 1994.
11. The Biological Significance of 5 α -Reductase and Aromatase in Brain Development and Function. Department of Zoology, **Brigham Young University**. Provo, UT., February 8, 1994.

INVITED CONFERENCES AND SEMINARS

12. Neurobiology of 5 α -Reductase and Aromatase in CNS Differentiation. Department of Biology, **Texas Women's University**. Denton, TX., February 15, 1994.
13. National Institutes of Health (NIH), Conference. Department of Health and Human Services, **National Institute of Neurological Disorders and Stroke (NINDS)**. Bethesda, MD., October 24-25, 1994.
14. Perinatal Brain Aromatase: Enzymatic and Molecular Implications. **Workshop on Steroid Hormones and Brain Function**. Breckenridge, CO., April 1-5, 1995.
15. Molecular Biology Studies on Brain Aromatase Cytochrome P450. Department of Neurobiology, **UCLA Medical School**, Los Angeles, CA., November 10, 1995.
16. Symposium Speaker, Molecular Aspects of Brain Aromatase Cytochrome P450, **IV International Aromatase Conference**, Tahoe City, CA, June 8-11, 1996.
17. Biological Sciences Conference, Molecular and Enzymatic Characteristics of Brain Aromatase Cytochrome P450, **National Science Foundation**, Arlington, VA., June 24-25, 1996.
18. Sigma Xi Lecture of the Month, Conversion of Testosterone to Estrogens in the Brain. Enzymatic and Molecular Biology Studies. **Brigham Young University**. Provo, UT., October 17, 1996.
19. Neural Development and Function: Influence of Brain Aromatase, 5 α -Reductase and Calcium-Binding Proteins. **The University of Texas at Dallas**, Richardson, TX., March 20-21, 1997.
20. CNS Development and Function: Influence of Aromatase, 5 α -Reductase, Calcium-Binding Proteins and Phytoestrogens. Department of Cell Biology and Biochemistry, **Texas Tech Medical School**. Lubbock, TX., March 25-27, 1998.
21. NSF Career Program P.I. Meeting. Neuroscience: Steroid Hormones, Calcium-Binding Proteins and Undergraduate Research, **National Science Foundation**, Arlington, VA., January 10-12, 1999 .
22. National Institutes of Health (NIH) Workshop on Phytoestrogens and Healthy Aging: A Research Agenda, Workshop speaker-NIH Aging (NIA), Phoenix, AZ, June 2-4, 1999. Published in Menopause 8:157-170, 2001.
23. The Neuroscience Major at BYU. Forum speaker-**Ricks College**, Departments of Psychology and Biology, Rexberg, ID, October 14-15, 1999.

INVITED CONFERENCES AND SEMINARS

24. Environmental Signaling and the CNS. **Symposium Speaker. Satellite Meeting to The Annual Meeting For The Society For Neuroscience**, Tulane Environmental Research Center, New Orleans, LA, November 4, 2000.
25. Brain Aromatase and Memory Effects of Dietary Soy Phytoestrogens. **Grand Rounds, The Barrow Neurological Institute**, St. Joseph's Hospital, Phoenix, AZ. 12th January, 2001.
26. Brain Androgen and Progesterone Metabolizing Enzymes: Synthesis, Distribution and Function. **Steroids and Nervous System. Invited Speaker-International Neuroscience Scientific Meeting**, Villa Gualino, Torino, Italy, February 11-14, 2001.
27. Dietary Soy Phytoestrogens Alter Sexually Dimorphic Hypothalamic Nuclei in Adult Rats. **Experimental Biology 2001, Symposium speaker on Brain Aging and Nutrition**, Orlando, FL. March 31- April 4, 2001.
28. Quantitative and Qualitative Methodologies for Brain Aromatase Enzymatic Activity and mRNA Levels, **Invited Speaker, Environmental Protection Agency (EPA), Reproductive Endocrinology Division**, Research Triangle Park, NC, May 8, 2001.
29. Dietary Soy Phytoestrogens Produce Anxiolytic Effects in the Elevated Plus Maze. Exposure to Estrogenic Disrupters During Development: Effects of Brain and Behavior. **Invited Symposium Speaker - International Neurotoxicology Meeting, Annual Neurobehavioral Teratology Mtg.**, Montreal, Canada, June 24-27, 2001.
30. Brain Function and the Impact of Phytoestrogens Diets in Rat Models. **Invited Symposium Speaker on The Effects of Dietary Phytoestrogens on Reproductive, Toxicity and Carcinogenicity Studies- American Association for Laboratory Animal Science**, 52nd National Meeting, Baltimore, MD, October 21-25, 2001.
31. Phytoestrogens- Generating Artificial Data in Animal Research? **President's Address, Fall Intermountain Society for Neuroscience Meeting**, Thanksgiving Point, Utah, October 25, 2001.
32. Herbs, Phytoestrogens, and Current Fads. **Invited Conference Speaker, A Woman's Journey-Leading Your Patients to Health and Wellness, St. Joseph Hospital**, Denver, CO, October 26, 2001.

INVITED CONFERENCES AND SEMINARS

33. Effects of Dietary Soy Phytoestrogens on Brain Aromatase, Anxiety Behavior, Neural Structure and Memory. **Invited Symposium Speaker. 4th International Symposium on the Role of Soy in Preventing and Treating Chronic Disease**, San Diego, CA, Nov. 4-7, 2001
34. Neurobehavioral Effects of Dietary Soy Phytoestrogens. **Invited seminar speaker, Department of Biology, Texas Woman's University**, Denton, TX, Feb 14, 15, 2002.
35. Dietary Phytoestrogens Effects on Brain and Behavior. **Invited seminar speaker, Department of Veterinary Biosciences, University of Illinois**, Urbana, IL, Mar 1, 2002.
36. Estrogens and Phytoestrogens Effects on Brain Development and Function. **Invited seminar speaker, Department of Anatomy and Cell Biology, Howard University, Washington, D.C.**, May 3rd, 2002.
37. Hormonal and Metabolic Effects of Dietary Phytoestrogens. **Invited seminar speaker, Department of Physiology, The University of Texas Health Center, at San Antonio, San Antonio, TX.**, May 9-10, 2002.
38. Estrogen and Phytoestrogens: Brain Plasticity and Function. **Invited symposium speaker, International Congress on Hormonal Steroids and Hormones and Cancer, Fukuoka, Japan**, October 21-25, 2002.
39. A Receipt For Soy-Isoflavones Influencing Brain Structure and Behavior. **Symposium Speaker, 2004 Hawaii International Conference on Sciences, Honolulu, HI**, Jan. 15-18, 2004.
40. Is There Hope for Baldness? Hormonal Actions of Androgens (and Estrogens) in Skin and Hair. **Invited speaker, Intermountain Chapter – Society of Cosmetic Chemists**, Salt Lake City, UT, May 19, 2004.
41. Diet, Brain and Behavior: Influence of Isoflavones. **Invited workshop speaker, Society for Behavioral Neuroscience**, Austin, TX, June 22, 2005.
42. Gender Differences in Neural Structures. **Invited Symposium speaker, American Psychology Association**, Washington, D.C., August 18-21, 2005.

INVITED CONFERENCES AND SEMINARS

43. Effects of Dietary Estrogens on Developmental, Endocrine and Toxicity Studies. **Invited Conference Speaker, National Institutes of Environmental Health Sciences (NIEHS)**, Research Triangle Park, NC, Sept. 14-15, 2005.
44. Phytoestrogens: Brain, Hormones & Behavior, **Keynote Speaker, Northeastern Society for Neuroscience**, New York, New York, (Manhattan) April, 8, 2006
45. Project Directors Workshop, NRI Bioactive Food Components for Optimal Health, **Invited Speaker at the United States Department of Agriculture (USDA)**, Washington, D.C., June 25-26, 2007.
46. **Utah Governor's Office of Economic Development & USTAR, Invited Speaker, Natural Products Research Roundtable**, "BYU Model of Technology Development" Salt Lake City, UT, February 17, 2010.
47. **Invited Scientific Speaker- Metagenics, Seattle, Washington, Equol Review and Health Applications, March 1st, 2011**
48. **Scientific - Oral Presentation and co-chair** Section 11: Body Protection with Nutraceuticals - Restructuring of the ECM in Human Skin by Equol: A Plant and Soy-derived Isoflavonoid. Gene Expression and Protein Evidence, **4th International Conference and Exhibition on Nutraceuticals and Functional Foods, Sapporo, Japan**, November 14-17, 2011.
49. **Scientific – Oral Presentation** The Isoflavonoid, Equol Improves Severe & Moderate BPH Symptoms in Mid-age Caucasian Men: Clinical Evidence, **50th Annual Phytochemical Society Mtg., Hilo, Hawaii**, December 10-15, 2011.
50. **Scientific – Oral Presentation Track Session** Youthful Expression of Skin Genes/Proteins (while Aging Factors are inhibited) by a Plant-derived Isoflavonoid, Equol: *In Vitro* and Clinical Evidence. **20th Annual World Congress Anti-Aging Medicine (American Academy Anti-Aging Medicine), Orlando, Florida**, May 17-19, 2012.
51. **Scientific – Oral Presentation** Gene Analysis of 4'-Acetoxy Resveratrol: Potential Skin Applications, **Annual Mtg Phytochemical Society of North American, London, Ontario, Canada**, August 11-15, 2012.
52. **Scientific – Oral Presentation-General Session** Equol Provides Anti-Aging Effects by Significantly Improving Skin Appearance and Relieving Prostate Enlargement: *In vitro* and Clinical Evidence, Las Vegas, Nevada, USA, **American Academy of Anti-Aging Medicine Conference**, December 12-15, 2012.

INVITED CONFERENCES AND SEMINARS

53. **Scientific-Oral Presentation-** Equol: A Super Polyphenilic Molecule, Orlando, Florida, USA, **American Academy of Anti-Aging Medicine Conference**, April 11-13, 2013.
54. **Scientific-Oral Presentation-**Resveratrol analogs (butyrate and isobutyrate): human skin gene expression analysis, UCLA, Los Angeles, CA, USA, **14th International Conference of Functional Food Center**, August 20-22, 2013
55. **Scientific-Oral Presentation** Estrogen/Androgen Receptors & Sex Steroid Hormone Actions in Human Skin, **Co-chairman, Track 1: Principles of Endocrinology, World Congress of Endocrinology 2013**, Raleigh, North Carolina, USA, August 26-28, 2013
56. **Scientific – Oral Presentation-** Clinical Signs of Aging Skin (Facial Wrinkles): Aesthetic Role of Equol Isomers for Skin Anti-Aging, Las Vegas, Nevada, USA, **American Academy of Anti-Aging Medicine Conference**, December 12-15, 2013.
57. **Scientific-Oral Presentation-** Session 4. Equol: A Super Polyphenolic Molecule, Orlando, Florida, USA, **American Academy of Anti-Aging Medicine Conference**, May 14-18, 2014.
58. **Scientific-Oral Presentation-** Anti-Aging Influences of Resveratrol and Resveratrol Analogs via Analysis of Human Skin Gene Expression, **Resveratrol 2014**, Big Island Hawaii, November 30th-December 3rd, 2014.
59. **Scientific-Oral Presentation-**Equol Technology: Applications for Human Disorders, **BioUtah Life Science Summit**, Salt Lake City, Utah, November 4-5th, 2015.
60. **Scientific-Oral Presentation-** Polyphenolic Botanicals – Applications for Prostate Health, **7th World Congress on Healthcare and Technologies**, London, United Kingdom, September 26-27, 2016.

PATENTS (issued)

1. Australian Patent No. 2003286781 USE OF EQUOL FOR TREATING ANDROGEN MEDIATED DISEASES (issued Sept 2009) covering prostate BPH and prostate cancer
2. Australian Patent No. 2005239984 USE OF EQUOL FOR TREATING SKIN DISEASES (issued June 2010) covering all aspects of skin and hair
3. Australian Patent No. 2006347276 USE OF EQUOL FOR AMELIORATING OR PREVENTING NEUROPSYCHIATRIC DISEASES OR DISORDERS (issued March 2013) covering all aspects of brain health
4. United States of American Patent No. 8450364 USE OF EQUOL FOR TREATING ANDROGEN MEDIATED DISEASES (issued May 2013) covering metabolism/weight control and skin and hair.
5. United States of American Patent No. 8580846, USE OF EQUOL FOR AMEILORATING OR PREVENTING NEUROPSYCHIATRIC AND NEURODEGENERATIVE DISEASES OR DISORDERS (issued November 2013) covering weight control/brain health
6. United States of America Patent No. 8668914, USE OF EQUOL FOR TREATING SKIN DISEASES (issued March 2014) covering all aspects of skin & hair
7. United States of America Patent No. 9089547, USE OF EQUOL FOR TREATING ANDROGEN MEDIATED DISEASES (issued July 28, 2015) covering racemic equol for benign prostatic hyperplasia (BPH) and prostate cancer
8. United States of America Patent No.9,408,825 USE OF EQUOL FOR TREATING ANDROGEN MEDIATED DISEASES (issued August 9th, 2016) consisting of racemic equol for benign prostatic hyperplasia (BPH) and prostate cancer
9. Japanese Patent No. 2004-548591 USE OF EQUOL FOR TREATING ANDROGEN MEDIATED DISEASES (issued Dec 2011) covering prostate BPH and prostate cancer
10. Japanese Patent No. 5220406 USE OF EQUOL FOR TREATING SKIN DISEASES (issued March 2013) covering skin
11. Japanese Patent Application No. 5535999 USE OF EQUOL FOR AMEILORATING OR PREVENTING NEUROPSYCHIATRIC AND NEURODEGENERATIVE DISEASES OR DISORDERS (issued May 2014) covering metabolism, weight control and brain health

PATENTS (continued-pending)

12. Europe PCT 2004-548591 USE OF EQUOL FOR TREATING ANDROGEN MEDIATED DISEASE, covering weight control/brain health-pending

13. China 2010 105029 16.9 USE OF EQUOL FOR TREATING SKIN DISEASES, covering skin and hair-pending

Paid Consultant (2005 to present in chronological order) to:

1. USANA Health Science, Salt Lake City, Utah (personal care products)
2. Kimberly-Clark Corporation, Neenah, Wisconsin (cosmetics/dermatology)
3. Crocker Ventures-Rejuvenation Laboratories, Salt Lake City, Utah (supplements & cosmetics)
4. Deseret Biologicals, Sandy, Utah (supplements & cosmetics)
5. Homeopathic Holdings, Pleasant Grove, Utah (supplements & cosmetics)
6. Nu Skin Enterprises, Provo, Utah (cosmetics/dermatology)

TEXTBOOK

Human Biology Review by Edwin Lephart, Kendall/Hunt Pub. Co., Dubuque, Iowa, Copyright 2009, ISBN 978-0-7575-61443

CONTINUING PHARMACEUTICAL EDUCATION CREDIT

American Society of Consultant Pharmacists

ACPE. I.D. Univ. Prog. No. 203-000-02-197-C01

Dementia and Alzheimer's Disease: A Multidisciplinary Assessment of Diagnosis and Management in LTC. June 5, 2002. 1.0 hour credit

**PRESS RELEASE (LOCAL AND NATIONAL): MARCH 2004 & FEBRUARY 2010–
EQUOL TECHNOLOGY (MEN’S HEALTH AND COSMETICS)**

CONTINUING SOCIETY OF COSMETIC CHEMISTS EDUCATION CREDIT

1. Cosmetic Formulations, Instructors: Ken Klein & Mark Chandler, New York City, New York, December 6 & 7th, 2005.
2. Advanced Skin Care, Instructor: Randy Wickett, PhD, Boston, MA, May 10, 2006
3. How the Cosmetic Ingredient Review (CIR) Program Impacts the Cosmetic Chemist, Alan Anderson, PhD. CTFA, Boston, MA, May 11, 2006.

October 6, 2016

CURRICULUM VITAE

BRIAN ALAN MAURER

PERSONAL

Born: August 18, 1954.
Address: Department of Fisheries and Wildlife
Michigan State University
East Lansing, MI 48824
Phone: (517) 353-9478
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EDUCATION

Brigham Young University, Provo, UT, B.S., 1977
Major: Zoology

West Virginia University, Morgantown, WV, M.S., 1980
Major: Wildlife Management
Thesis Topic: Avian foraging and habitat structure.

University of Arizona, Tucson, AZ, M.S., 1982
Major: Statistics
Thesis Topic: Repeated measures in bioassay.

University of Arizona, Tucson, AZ, Ph.D., 1984
Major: Wildlife Ecology
Minor: Ecology and Evolutionary Biology
Dissertation Topic: Environmental heterogeneity and avian community structure.

ACADEMIC POSITIONS

Graduate Research Assistant, 1978 - 1980
Division of Forestry
West Virginia University

Graduate Assistant, 1980
Department of Statistics
Brigham Young University

ACADEMIC POSITIONS (cont.)

Statistical Programming Consultant, 1981 - 1983

College of Agriculture
University of Arizona

Visiting Assistant Professor and Research Associate, 1984 - 1986

Department of Ecology and Evolutionary Biology
University of Arizona

Assistant Professor, 1986 - 1992

Associate Professor, 1992 - 1999

Department of Zoology
Brigham Young University

Visiting Scientist, 1988

Lanzhou University
People's Republic of China

Research Associate in Community Ecology, 1994-1995

Museum of Natural History
University of Kansas

Distinguished Researcher in Residence, 1997

Mountain Research Center
Montana State University

Associate Professor, 1999 – 2008

Professor, 2008 - present

Department of Fisheries and Wildlife
Michigan State University

Director, 2012 – present

Center for Statistical Training and Consulting
Michigan State University

RESEARCH AND TEACHING INTERESTS

Population and community ecology of vertebrates

Conservation biology

Macroecology and macroevolution

Ecological and evolutionary theory

Statistical ecology and biometry

Nonlinear dynamics and fractals in ecological systems

PROFESSIONAL AFFILIATIONS

American Ornithologists' Union, Elective Member 1993
Ecological Society of America

EDITORIAL APPOINTMENTS

Contributing editor, *Studies in Avian Biology* 13, 1993.
Associate Editor, *Great Basin Naturalist*, 1990-1993.
Editorial board, *Biodiversity Letters*, 1992-1997.
Editorial board, *Diversity and Distributions*, 1997-1998
Board of Editors, *Ecology and Ecological Monographs*, 1995-1997.
Editorial Board, *Global Ecology and Biogeography*, 1999 - 2003
Board of Editors, *Ecological Applications*, 2000 - 2003
Editorial Board, *Ecology Letters*, 2001-2004
Editorial Board, *Evolutionary Ecology Research*, 2001 – present

SUPPORTED RESEARCH

Brigham Young University, College of Biology and Agriculture, 1986-1999, \$46,000.

University of Wyoming - National Park Service Research Center, 1989, \$10,800.

Brigham Young University, grant to host Ames group meeting, 1991-1992, \$10,000.

Environmental Protection Agency, R81-8358-010, 1991-1993, \$189,203.

National Science Foundation, DEB - 9424615, 1995-1997, \$120,000; REU supplement, 1996, \$4,800; REU supplement, 1997, \$5,000.

National Center for Ecological Analysis and Synthesis, 1998-1999, Working group on Analyzing the Demographic Structure of Geographic Ranges, \$11,140.

Environmental Protection Agency, Office of Research and Development, National Center for Environmental Research and Quality Assurance, STAR grant # G9A10014, 1999-2000, \$133,622.

Michigan Department of Natural Resources, Michigan GAP modeling, 2000-2003, \$240,000

Michigan SeaGrant Program, Modeling temporal dynamics of coastal wetlands, 2003-2004, \$10,549.

Michigan Department of Natural Resources, Habitat models for forest planning, 2003-2005, \$124,508.

Michigan Department of Natural Resources, Refining wildlife habitat models for land use decision support, 2005-2008, \$227,606.

Center for Statistical Training and Consulting, Michigan State University, 2012-2015, \$60,000

World Animal Awareness Society, Population size and distribution of stray dogs in Detroit: a preliminary study, 2013, \$11,226

Quantitative Fisheries Center (on behalf of Ontario Ministry of Natural Resources), Biodiversity of Lake Huron fish communities, 2013, \$6,000

GRADUATE STUDENTS

David Pennock, MS, Brigham Young University, 1990

Tara Williams, MS, Brigham Young University, 1990

Greg Heywood, MS, Brigham Young University, 1992

Mark Grover, MS, Brigham Young University, 1992

Marianne Hopp, MS, Brigham Young University, 1995

Leslie Clifford, MS, Brigham Young University, 1995

Eric Linder, PhD, Brigham Young University, 1999

Katherine Kahl, MS, Michigan State University, 2003

Genevieve Nesslage, PhD, Michigan State University, 2005

Jennifer Skillen, PhD, Michigan State University, 2005

Erica Mize, MS, Michigan State University, 2009

Jason Karl, PhD, Michigan State University, 2009

Jay Roberts, PhD, Michigan State University, 2009

Anne Axel, PhD, Michigan State University, 2011

Lindsay Hunt, MS, Michigan State University, 2015

Andrea Dechnar, PhD, Michigan State University, current

Andrew Dennhardt, PhD, Michigan State University, current

POSTDOCTORAL ASSOCIATES

Marc-André Villard, Brigham Young University, 1992-1993

Elise Schmidt, Brigham Young University, 1993-1994

Brian McGill, Michigan State University, 2004-2006

BOOKS

Maurer, B.A. 1994. *Geographical population analysis: tools for the analysis of biodiversity*. Blackwell Scientific, Oxford.

Maurer, B.A. 1999. *Untangling Ecological Complexity: the Macroscopic Perspective*. University of Chicago Press, Chicago.

PEER-REVIEWED PUBLICATIONS

Maurer, B.A. and R.C. Whitmore. 1981. Foraging of five bird species in two forests with different vegetation structure. *Wilson Bull.* 93: 478-490.

- Maurer, B.A. 1982. Statistical inference for MacArthur-Levins niche overlap. *Ecology* 63: 1712-1719.
- Maurer, B.A. 1983. Overlap and competition in avian guilds. *Amer. Nat.* 121: 903-907.
- Maurer, B.A. 1984. Interference and exploitation in bird communities. *Wilson Bull.* 96: 380-395.
- Maurer, B.A. 1985. Avian community dynamics in desert grasslands: observational scale and hierarchical structure. *Ecol. Monogr.* 55: 295-312.
- Maurer, B.A. 1985. On the ecological and evolutionary roles of competition. *Oikos* 45: 300-302.
- Maurer, B.A. 1986. Predicting habitat quality for grassland birds using density-habitat correlations. *J. Wildl. Manage.* 50: 556-566.
- Brown, J.H. and B.A. Maurer. 1986. Body size, ecological dominance, and Cope's rule. *Nature* 324: 248-250.
- Brown, J.H. and B.A. Maurer. 1987. Evolution of species assemblages: effects of energetic constraints and species dynamics on the diversification of the North American avifauna. *Amer. Nat.* 130: 1-17.
- Maurer, B.A. 1987. Scaling of biological community structure: a systems approach to community complexity. *J. Theor. Biol.* 127: 97-110.
- Maurer, B.A. and J.H. Brown. 1988. Distribution of energy use and biomass among species of North American terrestrial birds. *Ecology* 69: 1923-1932.
- Brown, J.H. and B.A. Maurer. 1989. Macroecology: the division of food and space among species on continents. *Science* 243: 1145-1150.
- Maurer, B.A. 1989. Diversity dependent species dynamics: incorporating the effects of population level processes on species dynamics. *Paleobiology* 15:133-146.
- Maurer, B.A., E.A. Webb, and R.K. Bowers. 1989. Nest characteristics and nestling development of Cassin's and Botteri's Sparrows in southeastern Arizona. *Condor* 91:734-736.
- Maurer, B.A. and J.H. Brown. 1989. Distributional consequences of spatial variation in local demographic processes. *Annales Zoologici Fennici* 26:121-131.
- Brooks, D.R., J.D. Collier, B.A. Maurer, J.D.H. Smith, and E.O. Wiley. 1989. Entropy and information in evolving biological systems. *Biology and Philosophy* 4:407-432.
- Maurer, B.A. 1990. *Dipodomys* populations as energy processing systems: regulation, competition, and hierarchical organization. *Ecol. Modelling* 50:157-176.

- Maurer, B.A. 1990. Extensions of optimal foraging theory for insectivorous birds: implications for community structure. *Stud. Avian Biol.* 13:455-461.
- Raphael, M.G. and B.A. Maurer. 1990. Biological considerations for study design. *Stud. Avian Biol.* 13:123-125.
- Maurer, B.A. 1990. The relationship between distribution and abundance in a patchy environment. *Oikos* 58: 181-189.
- Demetropolous, C.L., L.F. Braithwaite, B.A. Maurer, and D. Whiting. 1990. Foraging and dietary strategies of two sublittoral cottids, *Jordania zonope* and *Artedius harringtoni*. *J. Fish Biology* 37: 19-32.
- Maurer, B.A. 1991. Concluding remarks: birds, body size, and evolution. *Acta XX Cong. Int. Ornith.* 2:835-837.
- Maurer, B.A., H.A. Ford, and E.H. Rapoport. 1991. Extinction rate, body size, and avifaunal diversity. *Acta XX Cong. Int. Ornith.* 2:826-834.
- Maurer, B.A. 1991. Ecological aspects of macroevolution. *Advances in Ecology* 1:29-39.
- Parrish, J.R. and B.A. Maurer. 1991. Injury to a Merlin (*Falco columbarius*) from discarded fishing tackle. *J. Raptor Research* 25:136-139.
- Maurer, B.A., J.H. Brown, and R.D. Rusler. 1992. The micro and macro in body size evolution. *Evolution* 46:939-953.
- Sites, J.W., Jr., S.K. Davis, D.W. Hutchinson, B.A. Maurer, and G. Lara. 1993. Parapatric hybridization between chromosomal races of the *Sceloporus grammicus* complex (Phrynosomatidae). II. Structure of the Tulancingo transect. *Copeia* 1993:341-366.
- Maurer, B.A. and S.G. Heywood. 1993. Geographic range fragmentation and abundance in neotropical migratory birds. *Conservation Biology* 7:501-509
- Maurer, B.A. and M.-A. Villard. 1994. Geographic variation in abundance of North American birds. *Research & Exploration* 10:306-317.
- Villard, M.-A., G. Merriam, and B.A. Maurer. 1995. Dynamics in spatially-divided populations of neotropical migratory birds in fragmented temperate forests. *Ecology* 76:27-40.
- Conroy, J.J., Y. Cohen, F.C. James, Y.G. Matsinos, and B.A. Maurer. 1995. Parameter estimation, reliability, and model improvement for spatially-explicit population models. *Ecological Applications* 5:17-19.
- Maurer, B.A., and M.-A. Villard. 1996. Continental scale ecology and neotropical migratory birds: how to detect declines amid the noise. *Ecology* 77:1-2.

- Villard, M.-A., and B.A. Maurer. 1996. Geostatistics as a tool for examining hypothesized declines in migratory songbirds. *Ecology* 77:59-68.
- Maurer, B.A., and R.D. Holt. 1996. Effects of chronic pesticide stress on wildlife populations in complex landscapes: processes at multiple scales. *Environmental Toxicology and Chemistry* 15:420-426.
- Curnutt, J.L., S.L. Pimm, and B.A. Maurer. 1996. Population variability of sparrows in space and time. *Oikos* 76:131-144.
- Maurer, B.A. 1996. Relating human population growth to the loss of biodiversity. *Biodiversity Letters* 3:1-5.
- Maurer, B.A. 1998. Ecological science and statistical paradigms: at the threshold. *Science* 279: 502-503.
- Maurer, B.A. 1998. Evolution of body size in birds, I: evidence for directionality. *Evolutionary Ecology* 12: 925-934.
- Maurer, B.A. 1998. Evolution of body size in birds, II: the role of reproductive power. *Evolutionary Ecology* 12: 935-944.
- Maurer, B.A. 2000. Macroecology and consilience. *Global Ecology and Biogeography* 9:275-280.
- Linder, E. T., M.-A. Villard, B. A. Maurer, and E. V. Schmidt. 2000. Geographic range structure in North American landbirds: variation with migratory strategy, trophic level, and breeding habitat. *Ecography* 23:678-686.
- Hadly, E.A., and B.A. Maurer. 2001. Spatial and temporal patterns of species diversity in montane mammal communities of western North America. *Evolutionary Ecology Research* 3:477-486.
- Barnosky, A.D., E.A. Hadly, B.A. Maurer, and M. Christie. 2001. Temperate terrestrial vertebrate faunas in North and South America: the interplay of ecology, evolution, and geography with biodiversity. *Conservation Biology* 15:658-674.
- Gammon, D.E., and B.A. Maurer. 2002. Evidence for non-uniform dispersal in the biological invasions of two naturalized North American bird species. *Global Ecology and Biogeography* 11:155-162.
- Maurer, B.A., and M.L. Taper. 2002. Connecting geographical distributions with population processes. *Ecology Letters* 5:223-231.
- Ernest, S.K.M., B.J. Enquist, J.H. Brown, E.L. Charnov, J.F. Gillooly, V.M. Savage, E.P. White, F.A. Smith, E.A. Hadly, J.P. Haskell, S.K. Lyons, B.A. Maurer, K.J. Niklas, and B. Tiffney. 2003. Thermodynamic and metabolic effects on the scaling of production and population energy use. *Ecology Letters* 6:990-995.

- Riley, S.J., G.M. Nessler, and B.A. Maurer. 2004. Dynamics of early wolf and cougar eradication efforts in Montana: implications for conservation. *Biological Conservation* 119:575-579.
- Smith, F.A., J.H. Brown, J.P. Haskell, S.K. Lyons, J. Alroy, E.L. Charnov, T. Dayan, B.J. Enquist, S.K.M. Ernest, E.A. Hadly, D. Jablonski, K.E. Jones, D.M. Kaufman, P.A. Marquet, B.A. Maurer, K.J. Niklas, W.P. Porter, K. Roy, B. Tiffney, and M.R. Willig. 2004. Similarity in mammalian body size across the taxonomic hierarchy and across space and time. *American Naturalist* 163:672-691.
- Marquet, P.A., F.A. Labra, and B.A. Maurer. 2004. Metabolic ecology: linking individuals to ecosystems. *Ecology* 85:1794-1796.
- Maurer, B.A., J.H. Brown, T. Dayan, B.J. Enquist, S.K.M. Ernest, E.A. Hadly, J.P. Haskell, D. Jablonski, K.E. Jones, D.M. Kaufman, S.K. Lyons, K.J. Niklas, W.P. Porter, K. Roy, F.A. Smith, B. Tiffney, and M.R. Willig. 2004. Similarities in body size distributions of small-bodied flying vertebrates. *Evolutionary Ecology Research* 6:783-797.
- Maurer, B.A., and B.J. McGill. 2004. Neutral and non-neutral macroecology. *Basic and Applied Ecology* 5:413-422.
- Fortin, M.J., T.H. Keitt, B.A. Maurer, M.L. Taper, D.M. Kaufman, and T.M. Blackburn. 2005. Species' geographic ranges and distributional limits: pattern analysis and statistical issues. *Oikos* 108:7-17.
- Holt, R.D., T.H. Keitt, M.A. Lewis, B.A. Maurer, and M.L. Taper. 2005. Theoretical models of species' borders: single species approaches. *Oikos* 108:18-27.
- Maurer, B.A. 2005. Statistical mechanics of complex ecological aggregates. *Ecological Complexity* 2:71-85.
- McGill, B.J., B.A. Maurer, and E.A. Hadly. 2005. Community inertia of Quaternary small mammal assemblages in North America. *Proceedings of the National Academy of Sciences (USA)* 102:16701-16706.
- McGill, B.J., B.A. Maurer, and M.D. Weiser. 2006. Empirical evaluation of neutral theory. *Ecology* 87:1411-1423.
- McGill, B.J., R.S. Etienne, J.S. Gray, D. Alonso, M.J. Anderson, H.K. Benecha, M. Dornelas, B.J. Enquist, J.L. Green, F. He, A.H. Hurlbert, A.E. Magurran, P.A. Marquet, B.A. Maurer, A. Ostling, C.U. Soykan, K.I. Ugland, and E.P. White. 2007. Species abundance distributions: moving beyond single prediction theories to integration within an ecological framework. *Ecology Letters* 10:995-1015.
- Nessler, G.M., B.A. Maurer, and S.H. Gage. 2007. Gypsy moth response to landscape structure differs from neutral model predictions: implications for invasive species monitoring. *Biological Invasions* 9:585-595.

- Morlon, H., E. White, R. Etienne, J. Green, A. Ostling, D. Alonso, B. Enquist, F. He, A. Hurlbert, A. Magurran, B.A. Maurer, B. McGill, H. Olff, D. Storch, and T. Zillio. 2009. Taking species abundance distributions beyond individuals. *Ecology Letters* 12:488-501.
- Klepac-Ceraj, V., K.P. Lemon, T.R. Martin, M. Allgaeir, S.W. Kembel, A.A. Knapp, S. Lory, E.L. Brodie, S.V. Lynch, B.J.M. Bohannan, J.L. Green, B.A. Maurer, and R. Kotler. 2010. Relationship between cystic fibrosis respiratory tract bacterial communities and age, genotype, antibiotics, and *Pseudomonas aeruginosa*. *Environmental Microbiology* 12:1293-1303.
- Karl, J.W. and B.A. Maurer. 2010. Multivariate correlations between imagery and field measurements across scales: comparing pixel aggregation and image segmentation. *Landscape Ecology* 25:591-605.
- Karl, J.W. and B.A. Maurer. 2010. Spatial dependence of predictions from image segmentation: a variogram-based method to determine appropriate scales for producing land-management information. *Ecological Informatics* 5:194-202.
- Lindell, C.A., and B.A. Maurer. 2010. Patch quality and landscape connectivity effects on patch population size: implications for metapopulation sizes and studies of landscape value. *Evolutionary Ecology Research* 12:249-258.
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Bence, J., B.A. Maurer, and T. Brenden. 2013. Project report: fish community analyses in light of biodiversity objectives. Report to Ontario Ministry of Natural Resources.

INVITED PAPERS GIVEN AT SCIENTIFIC MEETINGS

Brown, J.H. and B.A. Maurer. 1984. Statistical analysis of community organization. Symposium on detecting and understanding macroscopic patterns in complex ecological systems. Ecological Society of America, Fort Collins, CO.

Maurer, B.A. 1985. Observational scale and community analysis: hierarchical perspectives. Symposium on problems of scale in ecology: hierarchy theory applied. Ecological Society of America, Minneapolis, MN.

Maurer, B.A. 1986. Scaling of biological community structure: a systems approach to community complexity. Symposium on avian community ecology: the importance of scale. Cooper Ornithological Society, Davis, CA.

Maurer, B.A. 1987. Macroecology: evolutionary ecology of large scale ecological systems. Young Investigators Prize symposium. American Society of Naturalists, Bozeman, MT.

Maurer, B.A. 1988. Biological and statistical factors affecting estimates of foraging behavior. Symposium on food exploitation in terrestrial birds. Cooper Ornithological Society, Monterey, CA.

Maurer, B.A. 1989. Empirical estimation of interaction coefficients in systems of linear equations describing biological communities. NSF workshop on natural resource modeling. Glacier Institute, West Glacier, MT.

Maurer, B.A. 1989. Ecology, historical constraint, and the evolution of species assemblages. Symposium on progress towards a unified theory of evolution, University of Toronto, Toronto, Ontario, Canada.

Maurer, B.A. and J.H. Brown. 1990. Historical and ecological regulation of diversity in continental bird and mammal assemblages. Symposium on historical and geographical determinants of community diversity. Ecological Society of America, Snowbird, Utah.

- Maurer, B.A. 1990. Victims of scale: studying complex biological communities from limited perspectives. Symposium on non-equilibrium macrosystems in biology. University of Calgary, Calgary, Alberta, Canada.
- Maurer, B.A. 1991. Biological diversity and statistical models of biogeographic processes. DOE workshop on theoretical ecology: progress and prospects. Washington, DC.
- Maurer, B.A. 1991. Conservation at continental and global scales: Why don't we know more? Symposium on the role of scientists in the conservation effort. American Ornithologists' Union, Montreal, Quebec, Canada.
- Maurer, B.A. and N. Pack. 1992. Victims of scale: evolution of information in nonlinear dynamical systems. Symposium on thermodynamics and scale in evolving biological systems. Brigham Young University, Provo, UT.
- Maurer, B.A. 1992. Biological diversity, ecological integrity, and neotropical migrants: new perspectives for wildlife management. National training workshop on status and management of neotropical migratory birds. Estes Park, CO.
- Maurer, B.A. 1992. Responses of birds to global change. Workshop on managing arid and semi-arid lands in the face of global change. Boulder, CO.
- Maurer, B.A. 1993. Energetics of avian foraging. Symposium on avian energetics and nutritional ecology. American Ornithologists' Union, Fairbanks, AK.
- Maurer, B.A. 1993. Geographical responses of birds to global change. Symposium on global change and birds. American Ornithologists' Union, Fairbanks, AK.
- Villard, M.-A, and B.A. Maurer. 1993. Analyzing the spatial and temporal variation in population trends of neotropical migrant birds. Symposium on linking local, regional, and continental population trends in neotropical migrant birds. Ecological Society of America, Madison, WI.
- Maurer, B.A. and M.-A. Villard. 1993. Properties of geographic ranges of neotropical migrant birds and the likelihood of extinction. Symposium on linking local, regional, and continental population trends in neotropical migrant birds. Ecological Society of America, Madison, WI.
- Maurer, B.A. 1994. Relating patterns of geographic range structure in birds to ecological and demographic processes. Workshop on analyzing population data: what's new and what's needed. 1994 North American Ornithological Conference, Missoula, MT.
- Maurer, B.A. 1994. Why are some species more common than others? The importance of geographic range structure for the evolution of biological diversity. Symposium on dynamics of biodiversity: relating metapopulations to the history of life. Ecological Society of America, Knoxville, TN.

- Maurer, B.A. 1996. Can we conserve biological diversity without strategic information? Cooper Ornithological Society, San Diego, CA.
- Maurer, B.A. 1997. Body size and geographic range size of birds: some ecological and evolutionary consequences. Western Society of Naturalists, Monterey, CA.
- Maurer, B.A. 1999. Spatial statistics and the border of geographic ranges: the brave new world. Ecological Society of America, Spokane, WA.
- Maurer, B.A. 1999. Predicting distribution and abundance: thinking within and among spatial scales. Symposium on predicting species occurrences: issues of scale and accuracy. Snowbird, UT.
- Maurer, B.A. 2000. Measurement error in ecology: problems and prospects. Ecological Society of America, Snowbird, UT.
- Maurer, B.A. 2002. Adaptive diversification of body size: the roles of physical constraint, energetics, and natural selection. British Ecological Society, Birmingham, England.
- Maurer, B.A., and E.A. Hadly. 2002. Theory for understanding biodiversity at multiple scales. National Research Council of the National Academy of Sciences, Committee on the Geological Record of Biosphere Dynamics, Washington, D.C.
- Maurer, B.A., and B.J. McGill. 2004. Some thoughts on the role of metabolism in ecology. Ecological Society of America, Portland, Oregon.
- Klepac-Ceraj, V., and B.A. Maurer. 2009. Relationship between cystic fibrosis respiratory tract bacterial communities and age, genotype, antibiotics, and *Psuedomonas areuginosa*. Ecological Society of America, Albuquerque, NM.

PROFESSIONAL DEVELOPMENT WORKSHOP ATTENDANCE

1. Teaching

- NSF Workshop on teaching modeling methods in biological resource management, funded with stipend, University of Montana, Missoula, 1988-1989.
- NSF Workshop on quantitative sciences curriculum for life sciences students. Knoxville, TN 1994.
- Workshop on teaching evolution to undergraduates, American Society of Naturalists and Society for the Study of Evolution. Madison, WI, 1999.
- Hybrid Courses 101. Workshop on developing hybrid models for college teaching. Michigan State University, East Lansing, MI. 2005.

2. Research

DOE Workshop on theoretical ecology: progress and prospects. Gaithersburg, MD, 1991.

USDA Forest Service Workshop on conservation biology of the California Spotted Owl. Sacramento, CA, 1991.

National Training Workshop on status and management of neotropical migratory birds. Estes Park, CO, 1992.

USDA Forest Service/National Center for Atmospheric Research Workshop on managing arid and semi-arid lands in the face of global change. Boulder, CO, 1992.

Institute of Ecology Workshop on the application of spatially-explicit models to conservation and management of animal populations. Athens, GA, 1992.

North American Research Workshop on the ecology and management of cowbirds. Austin, TX, 1993.

Partners in Flight Workshop: building consensus for action. Cape May, NJ, 1995.

Ecological and Evolutionary Dynamics of Species' Borders. National Center for Ecological Analysis and Synthesis, Santa Barbara, CA, 1997-1999.

Sampling Curves in Ecology and Evolution. National Center for Ecological Analysis and Synthesis, Santa Barbara, CA, 1998.

Analyzing the Demographic Structure of Geographic Ranges. National Center for Ecological Analysis and Synthesis, Santa Barbara, CA, 1998-1999.

The Evidence Project - Supporting Scientific Claims. National Center for Ecological Analysis and Synthesis, Santa Barbara, CA, 1998-2000.

Predicting Species Occurrences: Issues of Scale and Accuracy. Snowbird, UT, 1999.

Body Size in Ecology and Paleoecology. National Center for Ecological Analysis and Synthesis, Santa Barbara, CA. 1999-2002.

Species Abundance Distributions. National Center for Ecological Analysis and Synthesis, Santa Barbara, CA. 2006-2008.

COURSES TAUGHT

Fundamentals of Ecology and Evolution, University of Arizona, 1984-1985

Biometry, University of Arizona, 1985

Natural History of Wildlife, Brigham Young University, 1986-1988

Evolutionary Science, Brigham Young University, 1988-1999

Conservation Biology, Brigham Young University, 1996

Ecological Theory, Brigham Young University, 1990

Quantitative Ecology, Brigham Young University, 1990

Terrestrial Ecosystems, Brigham Young University, 1992
 Ornithology, Brigham Young University, 1992-1999
 Ecological Data Analysis, Brigham Young University, 1994-1999
 Introductory Biology, Brigham Young University, 1997-1999
 Biogeography, Michigan State University, 2001-present
 Landscape Ecology, Michigan State University, 2005
 Applications of Organismal and Environmental Biology, Michigan State University, 2005-2012
 Applied Multivariate Statistical Methods, Michigan State University, 2004-present.

CONTRIBUTED PAPERS GIVEN AT SCIENTIFIC MEETINGS

1979-1985 13 papers	1991-1995 11 papers	2001- 2005 6 papers
1986-1990 10 papers	1996-2000 9 papers	2006-2010 7 papers
2011-present 4 papers		

PROFESSIONAL SERVICE

Murray Buell Award Committee, Ecological Society of America, 1986.
 Student Awards Committee, Cooper Ornithological Society, 1989.
 Ad hoc reviews of proposals for NSF, 1986-present.
 Review of manuscripts for *Ecology*, *J. Wildl. Manage.*, *Evolution*, *Amer. Nat.*, *Auk*, *Condor*,
Wilson Bull., *Oikos*, *Wildl. Monogr.*, *Ecol. Monogr.*, *Trends Ecol. Evol.*, *Wildl. Soc. Bull.*,
J. Field Ornithology, *Ornis Scandinavica*, *Biol. Conservation*, *Western J. Appl. Forestry*,
Ecol. Appl., *Phil. Transactions of the Royal Society*, *Science*, *Nature*, *Functional Ecology*
 Panel member (ecological specialist), AIDS and Related Research, AIDS -like viruses in natural
 rodent populations, NIH, 1989.
 Proposal Review Panel, U.S. EPA, Environmental Research Laboratory 1991.
 Program Review, DOE Theoretical Ecology Program, 1991.
 Technical Assistance and Review Panel, BLM and Idaho Army National Guard, 1991-1996.
 Research Working Group, Neotropical Migratory Bird Conservation Program, 1991-1995.
 Conservation biologist review group, California Spotted Owl, USDA Forest Service, 1991.
 Review of Park Service policies on mountain goats in Olympic National Park, 1993.
 Ecological consultant for Rocky Mountain Arsenal, 1994-1995.
 NSF Graduate Research Training Grants Panel, 1995-1996.
 NSF Postdoctoral Fellowships in Bioinformatics Panel, 1998-2000.
 NRC Board of Earth Sciences and Resources, Presentation to committee on the geological record
 of biosphere dynamics, 2002
 NSF Cyber-Enabled Discovery and Innovation Program, Panel, 2011

PROFESSIONAL REFERENCES

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Education:

BS, Brigham Young University, 1992

MS, Brigham Young University, 1994

PhD, Louisiana State University, 1999

Employment:

Postdoctoral Fellow, Japan Society for the Promotion of Science, 1999 – 2001

Faculty Member, Department of Zoology and Department of Integrative Biology, Brigham Young University, 2001-2007

Senior Research Scientist, Bigelow Laboratory for Ocean Sciences, East Boothbay, Maine, 2007-

Professor & Head of Biological Science Department, University of Arkansas - Fort Smith, Fort Smith, Arkansas, 2013-

Teaching:

Evolutionary Biology

Publications:

McCracken KG, Harshman J, McClellan DA, Afton AD. Data set incongruence and correlated character evolution: an example of functional convergence in the hind-limbs of stiff-tail diving ducks. *Syst Biol* 48:683-714, 1999.

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Wade E. Miller Vita

Emeritus Professor of Geology and Paleontology - Brigham Young University

Family: Wife; Patricia Haws, Married 1960
Children; Wade III, Keith, and Blake

Lived in Orange County, California, until moving to Utah to teach at Brigham Young University in 1971

Military Service: U.S. Army 2 years, January 1953 to December 1954. Served in U.S. & Korea

Degrees:	AA	General Studies	El Camino College, Torrance, California, 1957
	BS	Geology	Brigham Young University, Provo, Utah, 1960
	MS	Geology	University of Arizona, Tucson, Arizona, 1963
	PhD	Paleontology	University of California, Berkeley, CA, 1968

Teaching Employment: 1961 - 1964, Santa Ana College, Santa Ana, California - Instructor
1964 - 1966, University of California, Berkeley, CA, Teaching Assistant
1968 - 1971, Fullerton Junior College, Fullerton, CA, Instructor
1971 - 1977, BYU, Provo, UT, Assoc. Professor of Geology & Zoology
1977 - 2003, BYU, Provo, UT, Professor of Geology & Paleontology
1981 - 1990, BYU, Provo, UT, Chairman, Department of Geology
1983 - 1995, BYU, Provo, UT, Director of Earth Science Museum
1995 - 2002, BYU, Provo, UT, Professor of Geology & Paleontology
2003 - Ret'd (BYU, Provo, UT, Researcher, Department of Geology)

Completed two-year Stake Mission, Los Angeles, CA, 1955-1957;

Twelve month full time Family History Mission, Provo, UT, 2005

Served part time Family History Mission, Provo, UT, 2004, 2006-7 (Family History Training Center). Ward Missionary, Highland, Utah
2015-16

Church Callings:

Teacher in Sunday School (including several Gospel Doctrine classes), Primary, & Priesthood Quorums, YMMIA president, Elder=s Quorum President, Ward Genealogy Chairman, Served in 3 Bishoprics for seven years (as a Counselor and Bishop), along with many other Church callings

Completed two-year Stake Mission, Los Angeles, CA, 1955-1957;
Twelve month full time Family History Mission, Provo, UT, 2005
Served part time Family History Mission, Provo, UT, 2004, 2006-7 (Family
History Training Center). Ward Missionary, Highland, Utah
2015-16

Special Recognitions and Grants:

National Science Foundation (NSF) Fellowship, 5 NSF grants, 2 National Geographic Society grants, and many other grants totaling more than one-half million dollars, Sigma Xi Scientific Honor Society, Paleontological advisor (at different times) for the Bureau of Land Management, State of Utah, Las Vegas Natural History Museum, University of Mexico Instituto de Geologia, University of Hidalgo, Mexico, Museo del Desierto, Saltillo, Mexico, & the Dinosaur Society; Organizer of several scientific meetings; Research Associate at the Natural History Museum of Los Angeles County (1968 - Present); Vice President of the Utah Museums Association; Chairman of the Ethics Committee of the Society of Vertebrate Paleontology; Phi Kappa Phi Honor Society; and various other recognitions.

Research Activities: My research over the past 40 years has involved field and laboratory work in southern California, Utah, and Mexico (with minor work in Australia), and museum work in most major museums in the U.S., Canada, Mexico, and Germany. Topics of research mostly have involved Late Cenozoic mammals with some on Jurassic dinosaurs.

Special Presentations: Appearances on: "Good Morning America," "The Today Show," a special TV documentary with Walter Cronkite, several other TV documentaries and news programs, a nationally broadcast TV science show in Rome, Italy (twice), a nationally broadcast TV appearances in Tokyo, Japan, and Mexico. Forum Speaker at Ricks College (BYU Idaho). Additionally, I have spoken about geology and paleontology to many church, civic and school groups.

Membership in Professional Organizations: Society of Vertebrate Paleontology, American Society of Mammalogists, The Paleontological Society (current); The Geological Society of America, The Southern California Academy of Sciences and the Utah Museums Associations (past).

Publications:

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- _____, 1968, Occurrence of a giant bison, Bison latifrons, and a slender-limbed camel, Tanupolama, at Rancho La Brea. Los Angeles County Museum, Contributions in Science, 147, p. 1-9.
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- determined by fossil vertebrates. Geological Society of America, Abstracts, v. 12, no. 6, p. 298.
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CURRICULIM VITAE

Joseph R. Murphy

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Birth: June 14, 1925, Salt Lake City UT

Death: June 17, 1992, Orange CA

Education:

BA, Brigham Young University, 1950
MA, Brigham Young University, 1951
PhD, University of Nebraska, 1957

Employment:

Faculty Member, Department of Zoology, University of Nebraska, 1957-1960

Seasonal Park Naturalist for 20 summers in Yellowstone and Teton National Parks for the US National Park Service.

Faculty Member, Brigham Young University Department of Zoology and Entomology and Department of Zoology, 1960-1986.

Teaching:

Introduction to Animal Ecology, Animal Biology, Environmental Biology, Animal Ecology, Elementary Human Anatomy

Administration:

Chair, Department of Zoology, Brigham Young University, 1970-1975

Service:

President, Raptor Research Foundation, 1975-1978
Editor, Journal of Raptor Research

North American Secretary, World Working Group on Birds of Prey, International Council on Bird Preservation, 1970's

Member, Scientific Panel on the Spotted Owl.

Honors:

Honors Professor of the Year, Brigham Young University, 1965

Maeser Teaching Award, Brigham Young University, 1967

Eagle Person of the Year, Eagle Valley Environmentals, 1978

Publications:

Murphy JR Ecology of Passerine birds wintering at Utah Lake. MS Thesis, Brigham Young University, Provo, Utah, 1951.

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Murphy JR. Nesting ecology of raptorial birds in Central Utah. Brigham Young University Science Bulletin, Biological Series 10(4):1-35, 1969

Hamblin WK, and Murphy JR. Grand Canyon perspectives; a guide to the canyon scenery by means of interpretive panoramas. Brigham Young University geology studies, Brigham Young University Printing Services, Provo, Utah, 1969.

Hamblin WK, Rigby JK, Matheny RT, and Murphy JR. Guidebook to the Colorado River. Department of Geology, Brigham Young University, Provo Utah, 1969-1971.

Smith DG, and Murphy JR. Breeding ecology of raptors in the eastern Great Basin of Utah. Brigham Young University Science Bulletin, Biological Series 18(3):1-76, 1973.

Murphy JR, Harrell BE, and White CM. Population status of Raptors: Proceedings of the Conference on Raptor Conservation Techniques, Fort Collins, Colorado, 22-24 March 1973. Raptor Research Foundation, Vermillion, S.D., 1975.

Murphy J R, White CM, and Harrell BE. (eds). Population Status of Raptors. Raptor Res. Report No. 3. Vermillion, South Dakota, 232 Pp., 1975.

Murphy JR. Analysis of potential impacts of Central Utah project features on Golden Eagles: final report, parts I and IV. Brigham Young University Department of Zoology, 1978-9.

Mosher J A, White CM, Murphy JR, and Jenkins MA. Raptors of the Uinta Forest, Utah. Great Basin Nat. 38:438-436, 1978.

Fischer DL, and Murphy JR. Daily activity patterns and habitat use of coexisting Accipiter hawks in Utah. PhD Thesis, Brigham Young University, 1986.

Dawson W R, Ligon JD, Murphy JR, Myers JP, Simberloff D, and Verner J. Report of the scientific advisory panel on the spotted owl. *Condor* 89:205-229, 1987.

Graduate Students:

Joseph, Ronald A. 1977. Behavior of wintering Bald Eagles, M.S.

DeLong, Tod, R. 1982. Effects of ambient condition, M.S.

Ellis, Kevin L. 1986. Habitat selection of Sage Grouse, M.S.

Fischer, David L. 1986. Daily patterns of coexisting hawks, Ph.D.

Sabine, Neil B. 1987. Bald eagles wintering behavior, M.S.

Dan Walsh. 1989. Habitat and voice in Great-horned Owls, Ph.D.

CURRICULUM VITAE

Henry J. Nicholes

Sources:

UA 909; Faculty Biographical Files; University Archives; L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University.

<http://www.legacy.com/obituaries/deseretnews/obituary.aspx?n=henry-joseph-nicholes&pid=814047>

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: 24 March 1913, St. George, Utah

Death: 19 February 2003, St. George, Utah

Education:

Associate Degree, Dixie Junior College, 1932

BA, Brigham Young University, 1935

MS, University of Wisconsin, 1939

PhD, University of Wisconsin, 1941

Employment:

Lieutenant J.G. in US Navy during World War II

Instructor, Gila Junior College, 1945-1946

Teacher, BY High School, 1946-1947

Faculty Member, Department of Zoology and Entomology and Department of Zoology, 1947-1975.

Faculty Member, Brigham Young University Hawaii, 1975 to retirement

Teaching:

Survey Course in Heredity

Heredity

Human Anatomy and Physiology

General Physiology

Human Physiology

Physiology of Exercise

Endocrinology

Neurology

Body Fluids

Neurology

Endocrinology

Physiology of Visceral Organs
Elementary Human Anatomy
Animal Biology

Publications:

Nicholes HJ and Herrin RC. Tubular reabsorption of urea, thiourea, and derivatives of thiourea in dog kidney. *Am J Physiol* 135:113, 1941.

Herrin RC, and Nicholes HJ. The influence of vitamin A upon urea clearance in the human subject. *J Clin Invest* 19:489-492, 1940.

Nicholes HJ. Three ways a girl grows up. Brigham Young University Press, Provo, Utah, p 1-20, 1969.

Nicholes HJ. Three ways a boy grows up. Brigham Young University Press, Provo, Utah, p 1-27, 1969.

CURRICULUM VITAE

Peter A. Nyberg

Sources:

<http://www.findagrave.com/cgi-bin/fg.cgi?page=gr&GRid=95777109>

UA 909; Faculty Biographical Files; University Archives; L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University.

Pub Med: <https://www.ncbi.nlm.nih.gov/pubmed/?term=Nyberg+PA>

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: 21 June 1939, Roosevelt, Utah

Death: 5 January 1993, St. George, Utah

Education:

BS, Utah State University, 1962

MS, Utah State University, 1964

PhD, Oregon State University, 1967

Employment:

Faculty Member, Department of Zoology, Brigham Young University, 1968-1972

Faculty Member, Academic Vice President, Dean of the Science Division, Dixie College, St. George, Utah, 1972-1993

Teaching:

Parasitology, Integrative Principles of Zoology

Research Support:

NSF Grant, Excystation in *Coccidia*, 1971

Publications:

Nyberg PA and Hammond DM. Description of the sporulated oocysts and sporozoites of four species of bovine coccidia. *J Parasitology* 51:669-673, 1965.

Knapp SE, Nyberg PA, Dutson VJ, and Shaw JN. Efficacy of Bayer 99015 against *Fasciola hepatica* in sheep. *Am J Vet Res* 26:1071-1074, 1965.

Gebhardt GA, Millemann RE, Knapp SE and Nyberg PA. "Salmon Poisoning" Disease II. Second intermediate host susceptibility studies. *J Parasitol* 52:54-59, 1966.

Nyberg PA, Knapp SE, and Millemann. "Salmon Poisoning" Disease IV. Transmission of the disease to dogs by *Nanophyetus Salmineola* eggs. *J Parasitol* 53:694-699, 1967.

Nyberg PA, Helfer DH, and Knapp SE. Incidence of Bovine Coccidia in Western Oregon. *Proc Helminthological Soc of Washington* 34:13-14, 1967.

Nyberg PA, Bauer DH, and Knapp SE. Carbon dioxide as the initial stimulus for excystation of *Eimeria tenella* oocysts. *J Protozool* 15: 144-148, 1968.

Nyberg PA, and Knapp SE. Scanning electron microscopy of *Eimeria tenella* oocysts. *Proc. Helm. Soc. Wash* 37: 29-32, 1970.

Nyberg PA, and Knapp SE. Effect of Sodium Hypochlorite on the Oocyst Wall of *Eimeria tenella* as Shown by Electron Microscopy. *Proc Helm Soc of Wash* 37:32-36. 1970.

Jensen JB, Nyberg PA, Burton SD and Jolley JR. The Effects of Selected Gases on Excystation of Coccidian Oocysts. *J. of Parasitology* 62:195-198, 1976.

Jolley WR, Burton SD, Nyberg PA, Jensen JB. Formation of sulfhydryl groups in the walls of *Eimeria stiedai* and *E. tenella* oocysts subjected to in vitro excystation. *J Parasitol* 62:199-202, 1976.

Curriculum Vitae

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Education

1997, PhD in Biomathematics and Entomology
North Carolina State University
Dissertation: *Spatial Patterns and Processes in the Evolution of Insecticide Resistance*
Advisor: Stephen Ellner (Biomathematics), Fred Gould (Entomology)

1987, M.S. Environmental Biostatistics
University of North Carolina at Chapel Hill
Masters: *Inter-species Competition in Island Biogeography*

1986, B.S. Statistics-Computer Science
Minor: Zoology
Brigham Young University

Professional Experience

2006- Current Associate Professor; Department of Biology, Brigham Young University, Provo, UT.
2008 One year sabbatical leave with United Nations International Atomic Energy Agency (UN-IAEA) in Vienna, Austria working on computer simulation models of tsetse fly ecology and population genetics.
2000-2006: Assistant Professor; Department of Biology, Brigham Young University, Provo, UT.
1997-1999: Research Scientist; United States Department of Agriculture (USDA) / Agriculture Research Service (ARS); Pacific Basin Agricultural Research Center, Hilo, Hawaii.
1993-1997: Research Faculty; Department of Plant Pathology, North Carolina State University, Insect Indicator Lead for the Agroecosystem Resource Group of the Environmental Monitoring and Assessment Program (EMAP), Raleigh North Carolina.
1990-1993: Statistician; Faculty, North Carolina State University, Department of Statistics Agroecosystem Resource Group of the Environmental Monitoring and Assessment Program (EMAP).
1988-1990, (1995-1997: consulting): Statistician; Duke University Medical Center, Department of Cardiology, Biostatistics Unit

Areas of Interest

Agent Based Models; Simulation Modeling; Digital Humanities; Emergence; Philosophy of Biology; Environmental Bioethics; Ecology of Dipteran Movement; Process Philosophy; The Evolution of Novelty.

Peer Review Academic Publications

- Schuster, Haley and Steven L. Peck. (In review). Mars Ain't the Kind of Place to Raise Your Kid#: Ethical Implications of Pregnancy on Missions to Colonize other Planets. *Life Sciences, Society and Policy*
- Ahmadou H. Dicko, Renaud Lancelot, Momar Talla Seck, Laure Guerrini, Baba Sall, Mbargou Low, Marc J.B. Vreysen, Thierry Lefrançois, Fonta Williams, Steven L. Peck, and Jérémy Bouyer. 2014. Using species distribution models to optimize vector control: the tsetse eradication campaign in Senegal. *Proceedings of the National Academy of Science*. 11 (28) : 10149-10154
- Peck, S. L. 2014. Perspectives on why digital ecologies matter: Combining population genetics and ecologically informed agent-based models with GIS for managing dipteran livestock pests. *Acta Tropica*. 138S (2014) S22–S25
- Cottrell, S. J. L. Jenson, and S. L. Peck. 2014. Resuscitation and resurrection: The ethics of cloning cheetahs, mammoths, and Neanderthals. *Life Sciences, Society and Policy* 10:3 doi:10.1186/2195-7819-10-3
- Vargas, R.I., J.D. Stark, J. Banks, L. Leblanc, N. Manoukis, S. L. Peck. 2013. Spatial dynamics of two oriental fruit fly (Diptera: Tephritidae) parasitoids, *Fopius arisanus* (Sonan) and *diachasmimorpha longicaudata* (Ashmead) (Hymenoptera: Braconidae), in a guava orchard in Hawaii. *Economic Entomology* 42(5) 888-901.
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- Peck, S. L. 2013. Life as Emergent Agential Systems: Tendencies without Teleology in an Open Universe. *Zygon: Journal of Religion and Science* 48 (4): 984-1000.
- Peck, S. L. 2013. Digital ecologies as Tractarian systems. *Philosophy Study*. 3 (1) : 64-69
- Peck, S. L. and Jérémy Bouyer. 2012a. Mathematical modeling, spatial complexity, and critical decisions in tsetse control. *Journal of Economic Entomology* 105(5): 1477—1486.
- Peck, S. L. 2012b. Networks of habitat patches in tsetse fly control: implications of metapopulation structure on assessing local extinction probabilities. *Ecological Modelling* 246: 99–102.
- Peck, S. L. 2012c. Agent-based models as fictive instantiations of ecological processes." *Philosophy & Theory in Biology*. Vol. 4.e303 (2012): 12.
- Froerer KM, Peck SL, McQuate GT. 2011. Evaluation of readmission ink as a marker for dispersal studies with the oriental fruit fly, *Bactrocera dorsalis*. *Journal of Insect Science* 11:125, available online: insectscience.org/11.125
- K.M. Froerer, S.L. Peck, G.T. McQuate, R.I. Vargas, E.B. Jang, and D.O. McInnis. 2010. Long distance movement of *Bactrocera dorsalis* (Diptera: Tephritidae) in Puna, Hawaii: How far can they go? *American Entomologist* 56(2): 88-94.
- Peck, S. L. 2010. Death and ecological crisis. *Agriculture and Human Values* 27:105-109.
- Rasmussen, J., M. Belk, and S. L. Peck. 2009. Endangered species augmentation: a case study of

- alternative rearing methods. *Animal Conservation* 8:225–232
- Peck, S. L. 2009. Whose boundary? An individual species perspectival approach to borders. *Biological Theory*. 4(3): 274-279.
- Bell A.V., R. B. Rader, S. L. Peck, and A. Sih. 2009. The positive effects of negative interactions: Can avoidance of competitors or predators increase resource sampling by prey? *Theoretical Population Biology*. 76:52-58.
- Peck, S. L. 2008. The Hermeneutics of Ecological Simulation. *Biology and Philosophy* 23:383-402.
- Caprio, M. A., N. Storer, M. S. Sisterson, S. L. Peck and A. de H. N. Maia. 2008. Assessing the risk of the evolution of resistance to pesticides using spatially complex simulation models. In Whalon, Sanchez, and Hollingworth, *Global Pesticide Resistance in Arthropods*, CABI Publishing, Cambridge, MA.
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- (many authors), Peck, S. L. 2004. Minutes FIFRA Scientific Advisory Panel Meeting: A Set of Scientific Issues Being Considered by the Environmental Protection Agency Regarding: Product Characterization, Human Health Risk, Ecological Risk, And Insect Resistance Management For *Bacillus Thuringiensis* (Bt) Cotton Products June 8-10, 2004, Arlington, Virginia. U.S. EPA SAP Report No. 2004.
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- agricultural lands. *Journal of Environmental Quality* 29:728-737.
- Peck, S. L., F. Gould, and S. Ellner. 1999. The spread of resistance in spatially extended systems of transgenic cotton: Implications for the management of *Heliothis virescens* (Lepidoptera: Noctuidae). *Economic Entomology* 92:1-16.
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- Peck, S. L. 1997. *Spatial Aspects of the Evolution of Pesticide Resistance: Models and Recommendations*. A dissertation submitted to the Graduate Faculty of North Carolina State University in partial fulfillment of the requirements for the Degree of Doctor of Philosophy: Departments of Biomathematics and Entomology. North Carolina State University. Raleigh, NC.
- R. Christenson, Vollmer, R. Califf. S. L. Peck, M. O. Hanesian, Duh, E. Topel, K. Newby, and M. Ohman for the TAMI-7 Study Group. 1997. Assessment of coronary reperfusion after thrombolysis with a model combining myoglobin, creatine kinase-MB, and clinical variables. *Circulation* 96:1776-1782.
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- Hawks, S. R., S. L. Peck, B. Hafen & K. Karren. 1990. Rating stress in EMS: A Responder Survey. *Journal of Emergency Medical Services*. 15 (9):55-57.
- Sevilla, C. D., N. Wagner, R. White, S. L. Peck, R. Ideker, D. Hackel, K. Reimer, R. Selvester, G. Wagner. 1990. Anatomic validation of electrocardiographic estimation of the size of acute or healed myocardial Infarcts. *The American Journal of Cardiology*. 65:1301-1307.

Manuscripts in Preparation and Review

- Abbott, Michael & Steven L. Peck. The ethics of brain imaging to assess visual cortex in patients in a persistent vegetative state. Mentored ethics research paper.
- Anthony, Christopher & Steven L. Peck. How transparent should physicians be about their own attitudes about non-medical perspectives. Mentored ethics research paper.
- Peck, Steven L. & Jérémy Bouyer. Ethical issues in the control and suppression of tsetse fly populations: values and qualitative costs of environmental concerns. *International Bioethics*. Estimated submission: April 2016
- Peck, Steven L. & Jérémy Bouyer. Metapopulation dynamics of tsetse flies in the Neyes region of Senegal: Effect of movement on tsetse eradication using SIT. Target journal *Science*. Est. Feb 2016

Book Reviews

Peck, S. L. 2008. Review. Stauffer, Howard B. 2008. *Contemporary Bayesian and frequentist statistical research methods for natural resource scientists*. Wiley and Sons, Hoboken, New Jersey. xv + 400 p. \$100.00, ISBN: 978-0-470-16504-1. *Ecology*. 89:3258-3259.

Peck, S. L. 1999. Review of Gurney, W. S. C., and R. M. Nesbet. 1998. *Ecological dynamics*. Oxford University Press, NY. Reviewed in *Ecology* 80:728-729.

Peck, S. L. 1999. Review of Turchin, P. 1998. *Quantitative analysis of movement: measuring and modeling population redistribution in animals and plants*. Sinauer Associates, Sunderland, Massachusetts. Reviewed in *Ecology* 80:1451-1452.

Presentations and Posters

Peck, S. L. and Jérémy Bouyer. Using agent-based models to explore the effect of ecological complexity on tsetse suppression programs. Conference on Mathematical Models in Ecology and Evolution. Collège de France, Paris, July 8-10, 2015

Schuster, Haley. Ethical Implications of Pregnancy on Mars Mission. The 18th Annual Mars Society, Washington, DC, August 14-16, 2015

Invited Talk: Peck, S. L. Using agent-based models to explore the effect of ecological complexity on tsetse suppression programs. Pacific Branch of the Entomological Society of America, Tucson, AZ. April 7-9, 2014.

Invited Talk: Peck, S. L. Evolution and Ecology in Science Fiction and Fantasy. Life, the Universe, & Everything Symposium: 30th Annual Meeting 14-16 February 2012. Provo, UT

Invited Talk: Peck, S. L. American Perspectives on Environmental Ethics. Advanced Ethics King's School, Worcester, April, 2013.

Invited Talk: Peck, S. L. The effect of ecological complexity on tsetse suppression programs. Applying GIS and Population Genetics for Managing Livestock Insect Pest. London, UK 15-19 April 2013

Invited Talk: Peck, S. L. Conjuring the natural world out of digital fictions: the role of narrative in complex ecological computer simulation. Humanities Center Winter Symposium, sponsored by the Humanities Center and Office of Digital Humanities. March 2013 Provo, UT

Invited Talk: Peck, S. L. Evolution in Science Fiction and Fantasy. What is the Life, the Universe, & Everything Symposium: 30th Annual Meeting 14-16 February 2012.

Invited talk: Peck, S. L. Use of the metapopulation theory and individual-based models to improve pest control. Quels outils pour un changement d'échelle dans la gestion des insectes d'intérêt économique? (New tools for a change of scale in pest management). CIRAD, October, 2011, Montpellier, France. **Conference Keynote Address**

Plutynski, A., Peck, S. L. and F. Adler. 2011 Microbial Evolution and Public Health: A Multilevel Perspective. The International Society for History, Philosophy, and Social Studies of Biology Annual Meeting. July, 2011, Salt Lake City, UT.

- Peck, S. L. 2011. Mormonism's Current Experience with Creationism: Responses and challenges. The International Society for History, Philosophy, and Social Studies of Biology Annual Meeting. July, 2011, Salt Lake City, UT.
- Peck, S. L. 2011. Life as Emergent Agential Systems: Tendencies Without Teleology. What is Life: Theology, Science & Philosophy. June, 2011. Krakow, Poland.
- Peck, S. L. 2011. 'After the manner of their language:' The epistemological implications of complexity theory on the hermeneutics of prophetic discourse. The Society for Mormon Philosophy and Theology. April, 2011. Provo, UT
- Peck, S. L. 2011. Evolution and Ecology in Science Fiction. Life, the Universe and Everything: The Marion H. "Doc" Smith Symposium on Science Fiction and Fantasy. February, 2011. Provo, UT
- Peck, S. L. 2010. 'New Wine in Old Bottles? Novel Philosophical Problems in Representing Ecological Systems with Agent-Based Models. MODELS AND SIMULATIONS 4. The Institute for the History and Philosophy of Science and Technology at the University of Toronto, May 7-9.
- Peck, S. L. 2010. "The Implications of Evolution and Consciousness for Key LDS Doctrines. 2010 Society for Mormon Philosophy and Theology Annual Meeting: The Measure of Their Creation—Theological Anthropology. Utah Valley University. 25-27 March.
- Invited talk:** Peck, S. L. 2010. Metapopulations theory in tsetse control. Applying GIS and Population Genetics for Managing Livestock Insect Pests" from 22-26 Feb 2010, in Bali, Indonesia.
- Invited talk:** Peck, S. L. 2009. Networks of habitat patches in tsetse fly control: implications of metapopulation structure on assessing local extinction probability. Annual Meeting of the Entomological Society of America. Indianapolis, Dec. 15, 2009
- Invited talk:** Peck, S. L. 2009. Conjuring Ecologies: Hermeneutics, Representation, Construction and Modeling. Department of Integrated Studies, Utah Valley University, July.
- Invited talk:** Peck, S. L. 2009. The Ethics of Tsetse Fly Eradication, Philosophy Department Ethics Class. University of Utah, Salt Lake City Utah.
- Invited talk:** Peck, S. L., J. Odenbaugh. Ecological boundaries: Whose? 2008 Edges & Boundaries of Biological Objects Workshop: Ecosystems. Department of Philosophy, University of Utah, Salt Lake City.
- Invited talk:** Peck, S. L. 2007. *The hermeneutics of ecological simulation*. UFZ Centre for Environmental Research AND Max-Planck-Gesellschaft zur Förderung der Wissenschaften. Leipzig, Germany. Feb. 2007.
- Charles A. G., S L. Peck, D. Onstad. 2006. *Simulation in Bt*. Entomological Society of America Annual Meeting. Indianapolis, Indiana 12 Dec. 2006.
- Invited talk:** Peck, S. L. 2005. *The management of insect resistance to transgenic crops in small hectare metapopulations*. Fifth Asia-Pacific Congress of Entomology. Jeju Korea. October.

- Peck, S. L., A. Bell and R. Vargas. 2005. *Wide area control of Bactrocera cucurbitae: A mathematical model of wide area suppression*. Hawaiian Entomological Society, 2005 Pacific Entomology Conference. April. 2005.
- Peck, S. L. 2004. *An ecologist's view of LDS culture and the current environmental crisis*. Symposium: Our Stewardship: Perspectives on Nature. Brigham Young University, February 27-28.
- Invited talk: Peck, S. L. 2004. *Development and management of insect resistance against transgenic plants*. Korea Conference on Innovative Science and Technology-2004-GM Crops and Foods: Potential Safety and Environmental Impact. November 9-12, 2004. Korean Federation of Science and Technology Societies (KOFST). Gyeongju, Korea.
- Invited talk: Peck, S. L. Grant T. McQuate, Roger Vargas, Don McInnis, Eric Jang, Hannah Revis. 2004. *Confronting models with data*. Annual Fruit Fly Areawide Pest Management Progress Review and Conference. April 26-28, Honolulu, Hawaii.
- Invited Talk: Peck, S. L. 2004. *Modeling Resistance issues in model comparison*. Resistance Management Modeling Workshop. Held May 11-12, 2004 in Cincinnati, Ohio.
- Bell, A. R. (undergraduate student) and S. L. Peck. 2004. *Colony behavior in Tetramorium caespitum*. Entomology Society of America Annual Meeting, November 14-17, Salt Lake City, Utah.
- Bell, Adrian V., S. L. Peck, and Roger I. Vargas. 2004. *Delay equation modeling of fruit fly area-wide control*. Entomology Society Meetings, Entomology Society of America Annual Meeting, November 14-17, Salt Lake City, Utah.
- Peck S. L. 2003. *The spread of antibiotic resistance in a spatially structured hierarchy of metapopulations*. European Society for Evolutionary Biology 9th Congress, Leeds, Aug. 18-24.
- Peck, S. L., Craig Seager, Grant T. McQuate, Roger Vargas, Don McInnis, Eric Jang. 2003. *Movement of Melon Fly Bactrocera cucurbitae*. Pacific Entomology Conference, Hawaiian Entomological Society, Feb. 19-20.
- Invited Talk: Peck S.L. 2002. *The role of modeling in managing antibiotic resistant organisms*. Forum on Infectious Diseases: Resistance. Feb. 6-7. National Academy of Sciences:
- Peck. S. L. 2001 Invited symposium panel discussant. *Studies in antibiotic resistance and insecticide resistance: commonalities, differences, and new directions*. North Central Weed Science Society. December 13, in Milwaukee, WI.
- Invited Talk: Peck, S. L. 2000. *A computer simulation model of the movement and population dynamics of the Malaysian fruit fly (Bactrocera latifrons): Implications for management*. Exotic Fruit Fly Research Symposium. September 10-12, Riverside California.
- Peck, S. L. and G. T. McQuate. 2000. *The invasion of the solanaceous fruit fly on the island of Maui: An example of an invasion cascade*. Ecology Society of America 85th Annual Meeting, August 6-10 Snowbird, Utah.

- Peck, S. L. and G. T. McQuate. 1999. *The comparison of three pesticides used to control Mediterranean fruit fly infestations*. Pacific Entomology Conference. Honolulu, HI. February 22-23, 1999.
- Peck, S. L. and G. T. McQuate. 1999. *Control of Mediterranean fruit flies using bait sprays of spinosad and phloxine B: Possible malathion alternatives for fruit fly control programs*. Poster abstract, p. 55 in Proceedings of the 3rd Meeting of the Working Group on Fruit Flies of the Western Hemisphere, 4 - 9 July, 1999, Guatemala City, Guatemala.
- Peck, S. L. 1998. *A spatially explicit stochastic model demonstrates the feasibility of Wright's shifting balance theory*. Pacific Branch Meeting of the Entomological Society of America. June 22-24, 1998.
- Peck, S. L. 1998. *Theoretical population biology, evolutionary ecology, chaos and other ignored considerations in fruit fly action programs*. Poster at The Fifth International Symposium on Fruit flies of Economic Importance. Penang, Malaysia, June 1-5, 1998.
- Peck, S. L., G. T. McQuate, R. T. Cunningham and N. J. Liquido. 1998. *Field tests of the effectiveness of xanthene dye bait sprays in the control of two species of tephritid fruit flies*. Poster at The Fifth International Symposium on Fruit flies of Economic Importance. Penang, Malaysia, June 1-5, 1998.
- McQuate, G. T. and S. L. Peck. 1998. *Suppression of Mediterranean fruit fly populations over mountainous areas through aerial phloxine B-protein bait sprays: Regional Medfly program in Guatemala (MOSCAMED-Guatemala, USDA-APHIS-PPQ, USDA ARS*. Poster at The Fifth International Symposium on Fruit flies of Economic Importance. Penang, Malaysia, June 1-5, 1998.
- McQuate, G. T. and S. L. Peck. 1998. *Mortality of Mediterranean fruit flies following feeding on phloxine B - Protein baits, with and without uranine, and subsequent exposure to a range of different light intensities*. Poster at The Fifth International Symposium on Fruit flies of Economic Importance. Penang, Malaysia, June 1-5, 1998.
- Peck, S. L. 1996. *The spread of resistance in spatially extended systems of transgenic crops*. Entomology Society of America Meetings. Louisville, KY, Dec 8-12 1996.
- Peck, S. L. 1995. *Using ants as an indicator of agroecosystem condition*. Presented at the EMAP Science Symposium. research Triangle Park, NC, 7-9 March 1995.
- Peck, S. L. 1994. *Spatial aspects of the population biology of insecticide resistant alleles in large inhomogeneous regions: a 2D cellular automata model*. Presented at the Entomological Society of America Annual Meeting, Knoxville, TN, Aug 7-11, 1994.
- Neher, D. A. and S. L. Peck. 1994. *Measures of nematode community structure for a national monitoring program and sources of variability among and within agricultural fields*. Poster. Symposium on Biodiversity View points and Current Research. University of North Carolina, chapel Hill, 29 January 1994.
- Peck, S. L. 1994. *The use of insects in ecological monitoring*. Symposium on the results of recent Research in Ecological Monitoring and Assessment. Research Triangle Park, NC, April 12-14 1994.

- Hellkamp A., G. Hess, M. Munster, S. L. Peck and C. L. Campbell. 1994. *EMAP-Agroecosystems: Designing a report card for U. S. agroecosystem health*. Poster. 1st International Symposium on Ecosystem Health and Medicine. Ottawa, Ontario, 19-23 June 1994.
- Neher, D. A., J. O. Rawlings and S. L. Peck. 1993. *Measures of nematode community structure for a national monitoring program and sources of variability among and within agricultural fields*. Poster. Conference of the Soil Ecology Society. Lansing, Michigan, 3-6 May 1993.
- Peck, S. L. 1993. *Using insects as indicators of the environmental health of agroecosystems on a regional and national level*. Poster presented at the Ecological Society of America, Madison, Wisconsin. 31 Jul- 4 Aug, 1993.
- Bailey, B., S. Ellner, A. R. Gallant, D. Nychka and S. L. Peck. 1993. *Local Lyapunov exponents: predictability depends on where you are*. Presented by B. Bailey at the Joint Statistical Meetings of the American Statistical Association, San Francisco California, August 8-12, 1993.
- Peck, S. L. 1993. *The use of insects for monitoring the condition of the nation's agroecosystem in EMAP*. Presented at the Entomological Society of America Annual Meeting, Indianapolis Indiana, Dec 12-16, 1993.
- Peck, S. L., J. O. Rawlings and A. L. Finkner. 1991. *Sampling design issues in ecological monitoring for EMAP-Agroecosystems*. Presented at the Annual Meeting of the Ecological Society of America, San Antonio Texas Aug. 4-8, 1991.
- Peck, S. L., J. O. Rawlings and A. L. Finkner. 1991. *Sampling design options for EMAP-Agroecosystems*. Presented at the American Statistical Association meetings. Atlanta, 18-22 August 1991.

Consulting/ Panels

- | | |
|-----------|--|
| 1995-1997 | Statistical Consultant. Duke University Medical Center Department of Cardiology. Durham, N.C. USA. General statistical consultant including experimental design and data analysis. |
| 1998 | Entomology. Programa Mosca del Mediterraneo. USDA-APHIS Guatemala. Consulted on using Phloxine B sprays in U.S. sponsored Mediterranean fruit fly-free zone on Guatemala-Mexico boarder and sterile insect resistance management. |
| 1999 | Entomology. United Nations International Atomic Energy Agency. Bangkok Thailand. Advised on the use of Phloxine B in controlling patchy populations of <i>Bactrocera dorsalis</i> (Oriental Fruit Fly) in rural Thai fruit orchards. |
| 2001 | Entomology. Tam Dao National Park Vietnam. Consulted on the development of an EarthWatch grant to use butterflies as an indicator of environmental health. |
| 2004 | U.S. EPA FIFRA Scientific Advisory Panel (FIFRA SAP) product characterization, human health risk, ecological risk, and insect resistance management for <i>Bacillus thuringiensis</i> (Bt) cotton products. |
| 2004. | Korean Federation of Science and Technology Societies (KOFST). Gyeongju, Korea. Innovative Science and Technology-2004-GM Crops and Foods: Potential Safety and |

- Environmental Impact.
- 2005 Biotechnology Risk Assessment Research Grants Program panel USDA, CSREES Washington, D.C. on June 21-23, 2005
- 2006 EPA Scientific Advisory Panel Report SAP Minutes No. 2006-04 Evaluation of the Resistance Risks from Using 100% Bollgard and Bollgard II Cotton as Part of a Pink Bollworm Eradication Program in the State of Arizona.
- 2008 Sabbatical Leave with United Nations International Atomic Energy Agency, Vienna Austria.
- 2010 FIFRA Scientific Advisory Panel. Scientific Issues Related to Insect Resistance Management for SmartStax™ Refuge-in-the-Bag, a Plant-Incorporated Protectant (PIP) Corn Seed Blend. Dec 8-9, 2010 Washington, DC.

United Nations Joint FAO/IAEA Missions

- 1998 Advise Department of Agriculture Thailand on ecofriendly pesticides in fruit fly control.
- 2008-Current Applying GIS and Population Genetics for Managing Livestock Insect Pests working Group.
- 2008 Advise on Ethiopia Tsetse Control efforts in Lake Abaya Control Program
- 2009 Advise Tsetse control efforts by CIRAD (French Government Research Organization) in Senegal.
- 2010 Advise Tsetse control efforts by CIRAD (French Government Research Organization) in Senegal.
- 2012 Advise Tsetse control efforts by CIRAD (French Government Research Organization) in Senegal.
- 2013 Advise Tsetse control efforts by CIRAD (French Government Research Organization) in Senegal

Professional Affiliations

- 2008-present Philosophy of Science Association
- 1993-present Entomology Society of America
- 1997-present Society for the Study of Evolution
- 1996-present Sigma Xi, The Scientific Research Society
- 2000-present American Association for the Advancement of Science
- 2002-present The International Society for History, Philosophy, and Social Studies of Biology
- 2009-2010 (Organization discontinued at BYU) BYU Woman's Research Institute

Professional Development Activities

- 1996 Preparing the Professorate \$1000.00, North Carolina State University
- May 1 - May12, 2000 BYU Faculty Development Series, Spring Seminar.
- May 15 - May 19, 2000 Teaching Writing in the Disciplines, Brigham Young University
- Oct 1 - Oct 4, 2000. Short course on mathematical and biological complexity. Awarded \$751.00 by organizing committee to cover transportation, lodging, food, and materials. University of Tennessee, Knoxville.

May 2001	General Education Conference, Brigham Young University
Jan. 2001	Publish Don't Perish Scholarly Writing Workshop, Brigham Young University
Jan. 2002	Publish Don't Perish Scholarly Writing Workshop, Brigham Young University
Fall 2007	German 101 (to prepare for Sabbatical in Vienna)

Teaching Assignments

Semester/year	course	Enrollment	Student Evaluations Course / Teacher (max)
N.C. State			
Ecology 517		15	none available
Duke			
Population Ecology (Env 216) Graduate Course		40	3.6/3.8 (5)
Chinese Academy of Science			
Summer 2000 Graduate Ecology (in Kunming, China)		8	none available
BYU			
Fall 2000	Environmental Biology (Bio 150)	52	5.4/5.4 (7)
Winter 2001	Ecology (Zool. 350)	92	4.1/5.1 (7)
Winter 2001	Ecology (Zool. 350) night	20	5.3/6.0 (7)
Fall 2001	Environmental Biology	46	5.9/6.1 (7)
Fall 2002	Environmental Biology (Bio 150)	54	6.3/6.5 (8)
Fall 2002	Honors Natural Science (Hon. 344)	3	7.7/7.7 (8)
Winter 2003	Ecology (Zool. 350)	100	6.5/6.8 (8)
Fall 2003	Environmental Biology (Bio. 150)	44	6.4/6.8 (8)
Winter 2004	Directed Research--Mentoring (Bio. 494)	3	7.7/7.7 (8)
Winter 2004	Honors Natural Science (Hon. 344)	7	7.4/7.6 (8)
Winter 2004	Experimental Sys. Eco (InBio. 656)	7	6.8/7.3 (8)
Fall 2004	Environmental Biology (Bio. 150)	40	6.9/7.6 (8)
Fall 2004	Directed Research--Mentoring (Bio. 494)	4	7.5/7.7 (8)
Winter 2005	Hist. & Phil. Biology (InBio 470)	18	7.3/7.4 (8)
Spring 2005	Directed Research--Mentoring (Bio. 494)	2	6.5/6/5 (8)
Spring 2005	Ecology (Biology 350)	23	6.7/7.5 (8)
Fall 2005	Ecology (Biology 350) team-taught	160	6.0/5.8 (8)
Fall 2005	Phil. Biology (InBio 470) team-taught	8	7.0/7.2 (8)
Winter 2006	Honors Environment/Rel. (344R)	18	6.8/7.3 (8)
Winter 2006	InBio 656 Ecology	8	7.0/8.0 (8)
Winter 2007	Phil. Biology	21	7.4/7.6 (8)
Fall 2007	Phil. Biology	8	7.7/7.7 (8)
Winter 2009	Religion & Environment	11	6.6/7.2 (8)
Fall 2009	Phil. Biology	21	7.0/7.4 (8)
Winter 2010	Bioethics (new class)	70	6.8/6.9 (8)
Fall 2010	Bioethics	68	6.9/6.9 (8)
Fall 2010	History and Philosophy of Biology	10	6.7/7.5 (8)
Winter 2011	Bioethics	80	7.1/7.0 (8)
Winter 2011	Religion & Environment	24	6.4/6.8 (8)
Fall 2011	Bioethics	68	7.1/7.2 (8)
Fall 2011	History and Philosophy of Biology	14	7.2/7.2 (8)
Winter 2012	Bioethics	77	7.1/7.0 (8)
Winter 2012	Simulation Modeling	8	7.3/7.7 (8)

Fall 2012	Bioethics	75	7.0/7.1 (8)
Fall 2012	History and Philosophy of Biology	16	7.4/7.1 (8)
Winter 2013	Bioethics	73	6.9/7.1 (8)
Winter 2013	Environment and Religion	18	7.4/7.3 (8)
Fall 2013	History and Philosophy of Biology	18	7.0/6.9 (8)
Fall 2013	Bioethics	79	7.0/7.1 (8)
Winter 2014	Bioethics	77	7.1/7.1 (8)
Winter 2014	Modeling and Simulation 555 (2)resp.	6	6.0/6.5 (8)
Fall 2014	Bioethics	77	7.1/6.9 (8)
Fall 2014	History and Philosophy of Biology	16	7.4/7.6 (8)
Winter 2015	Bioethics	80	7.2/7.0 (8)

Student mentoring since coming to BYU

66 Undergraduates Mentored in lab
23 Graduate student committees
3 Master's theses (Karen Foerer, Adrian Bell, Sariah Cottrell)
120 Letters of Recommendation's Written

Research Support

2015: NSF: Biological community function and invasion in a changing world /w Sam St. Clair, Brock McMillan, Zachary Aanderud, & Rick Gill. Pre-Proposal: Invited; Full Grant: Declined

2015: Sant Fund for Student Nature Education. Ants in the Great Basin. \$10,000.

2014: NSF: Biological community function and invasion in a changing world /w Sam St. Clair, Brock McMillan, Zachary Aanderud, & Rick Gill. Pre-Proposal: Invited; Full Grant: Declined

2014: NSF: Model-based Suppression of Tsetse Fly Metapopulations in West Africa, w/ Jeremy Bouyer (CRAID: France) Pre-Proposal: Declined

2014: Meg: Modeling the spatial population ecology of the trypanosome vector, *Glossina palpalis gambiensis*, in Niayes region of Senegal using agent-based models. Declined.

2014: Sant: Using Ants as a Bioindicator of Ecological Changes Due to Climate Change in Utah's Laccoliths. Pending.

2014: Kennedy Center Study Abroad: World Parks in a Changing World. With Brigham Daniels, BYU Law School. Pending.

2013. NSF: Model-based Suppression of Tsetse Fly Metapopulations in West Africa. PI: Steven L. Peck; Co-PI: Jeremy Bouyer (CIRAD: Dakar, Senegal). Status: Denied.

2013 NSF: Developing a community-level framework for understanding desert ecosystem responses to climate variability and disturbance. PI: Sam St. Clair; Co-PIs: Brock McMillain, Zachary Aanderud, Steven L. Peck, Richard Gill. Status: Denied.

2012. Redd Center. Annaley Neagle Redd Assistantship. Cattle Ranching in the La Sal Mountains of Southeastern Utah \$8000.

2012. Denied. National Science Foundation. Spatial population ecology of trypanosome vector *Glossina Palpalis gambiensis* in Niayes region of Senegal. With French organization CIRAD & University Gaston Berger of Saint-louis, Senegal. \$1,248,747, (Rated 'Very Good' by five reviewers, Poor by one).

2009. *Denied*. National Science Foundation. Modeling the effect of habitat fragmentation on the population ecology of tsetse and trypanosomiasis control in Africa. \$1,400,000. Denied.

2009. MEG (Mentored Education Grant), BYU Internal Grant: \$20,000.

2008. Kennedy Center, BYU Internal Grant. \$5000.

2007. UN-IAEA Sabbatical Leave Cooperative Research Grant \$41,000.

2007 USDA-Pacific Basin Agricultural Research Center-supplement \$15,000. Bacterial movement studies in Puna, HI.

2006 USDA- Pacific Basin Agricultural Research Center. \$20,000. Bacterial movement studies in Puna, HI.

2006- Understanding Complex Modeling for Resistance Management. \$20,000. US-EPA

2005-2009. USDA- Pacific Basin Agricultural Research Center-supplement. \$20,00. Understanding the movement of *Bactrocera dorsalis* from mark-release-recapture studies and theoretical modeling studies: Enhancing wide-area control interventions.

August, 2002 USDA- Pacific Basin Agricultural Research Center. \$18,000.
Title: *Modeling the agricultural, biological, and spatial-geographic aspects of wide area fruit fly control in Hawaii*. Enhancement award.

August 2002-2003. June Sucker Recovery Program, M. C. Belk and S. Peck. Development of a life-stage model for June sucker.

January, 2002, Kennedy Center. \$2,500. Travel to attend conference in South Africa.

September, 2001. USDA- Pacific Basin Agricultural Research Center. \$42,000.
Title: *Modeling the agricultural, biological, and spatial-geographic aspects of wide area fruit fly control in Hawaii*. Five Years Renewable.
PI: Steven L. Peck.

May 1, 2001. \$12,765 Sant Endowment. Ant biodiversity and spatial distribution in the Great Basin:

toward developing ants as an indicator of habitat change.
PI: Steven L. Peck.

August 3, 2001. \$4727. Religious Studies Center. Natural Stewardship: Why we should care for the earth.
LDS perspectives on the Environment.

August 31, 2001. \$1500 Kennedy Center. Working in Tam Dao National Park, Vietnam.

April 6, 2000. \$3000. Kennedy Center. 1 Year.
Title: Developing a program for Understanding Antibiotic Resistance in China.
PI: Steven L. Peck and Steven R. Hawks.

May 6, 2000. \$6000. Awarded through Academic Vice Presidents Office for Undergraduate Research.
Title: Developing a laboratory strain of ants.

Academic Awards

2012 College of Life Sciences Outstanding Teaching Award

1999 Certificate of Merit USDA, Agriculture Research Service. \$2000. For successful management and execution of the malathion-sure-dye-spinosad comparison tests assigned by ARS National Program Staff.

1998 Lucus Research Award. Department of Biomathematics. \$200.00.
(Awarded to the best Dissertation or Thesis from the Biomathematics Department in 1997)

Service & Committees

Editorships

2008-present: Western North American Naturalist Editorial Board

Department

2014-Present Search Committee Chair
2012-Present Awards Committee
2012: Professional Development Committee Interim Chair
2007-2012: Biology Department Professional Development Committee
2010-2011 Arthropod Hire Search Committee

College

2012-Present Honors Coordinator
2008-2014 MEG Reviewer
2011 College Computer Committee
2010-current Faculty advisor for "Life, Universe and Everything Conference"
2001 College Scholarship Committee

University

2000-2008 Faculty Advisor for the Student Environmental Science Journal: Borrowed Earth

Peer reviewer for following journals

Acta Tropica, Agriculture and Human Values, Biology & Philosophy, Conservation Society, Ecological Applications, Ecological Theory, Ecology, Environmental Entomology, Evolution, Journal of Economic Entomology, Medical Principles and Practice, Philosophy of Science, Oikos, Royal Society B, Science, Transactions of the Society for Modeling and Simulation International.

Creative Writing

Evolving Faith (Essay Collection), Neal A. Maxwell institute, Oct 2015

Wandering Realities (Short Story Collection) Zarehemla Books, July 2015

Down Courthouse Wash (Short Story) *Perihelion Science Fiction Magazine*, January 2015

Tales from Pleasant Grove (Short Story) *Every Day Fiction*, May 2015

Démodé. (Short Story: 2014) *Nature Physics*. 10(1):80 doi:10.1038/nphys2860

Plague Ship (Short Story: 2013). Published in anthology *Space Eldritch II: The Haunted Stars*.

A Strange Report From the Archives. (Short Story, 2013) *Irreantum* (2nd Place contest winner)

How the Mother of Vampiro Rojo de Santanás Died at the Hand of the Ethicless Thing (*Short Story, 2013*)
Silverthought Press Online

The Silence of the River (Short Story, 2013) *Quantum Realities* Vol. 2, Issue 2 (Quantum Realities: A Journal of Speculative Fiction)

Incorrect Astronomy. (Collection of Poetry: 2013) Aldrich Press.

Emergence (Short Story, 2013) *Encounters Magazine*.

What the Ant Knows & Walks the Ape Warder (Poetry: 2012) *Silver Blade*.

Dragonfly Miscalculations (Short Story: 2012) *The Journal of Unlikely Entomology*

Should I tell her? (Short Story: 2012) *Daily Science Fiction*. <http://dailysciencefiction.com/>

Rifts of Rime (Middle Grade Novel: 2012) Cedar Fort Press.

A Short Stay in Hell (Novel: 2012) Strange Violin Editions.

The Scholar of Moab (Novel: 2011) Torrey House Press. Finalist for the Hoffer Montaigne Medal & AML Best Novel of 2011.

Let the Mountains Tremble for Adoniha has Fallen (Science Fiction Novella: 2011) *Monsters and Mormons: Anthology*. Peculiar Press.

Four Poems. *In Fire in the Pasture: Mormon Poetry in the 21st Century*. (Poetry: 2011). Peculiar Press.

The five known sutras of Mechanical Man (Science Fiction/Poetry: 2010) *Tales of the Talisman* 6:4 (Nominated for the Rhysling Award)

Winter Gifts (Poetry: 2010) *Victorian Violet* 5

Sage (Poetry: 2008) *Red Rock Review* July

Ant Lion (Poetry: 2007) *Glyphs III*, 141-143

Gift of King's Jeweler (Novel: 2003). Covenant Communications.

The Flaw in the Lord Harrington Scenario (Short Story: 2001). *HMS Beagle* (online science journal by Elsevier)

We are all connected (Essay: 1995) *Newsweek* August 28, 1995.

Advice on Correct Astronomy (Poetry: 1991) *BYU Studies* 31:1

Reflections of Stellar Ecology (Poetry: 1993) *BYU Studies* 33:4

Winton Night Walks (Poetry: 1988) *Dialogue* 21:2

Creative Writing Awards

2014 Association of Mormon Letters Best Short Story for *Two-dog Dose*, *Dialogue*

2012 Irreantum Literary Fiction Contest 2nd Place

2012 Best Novel published in 2011, Association of Mormon Letters, Finalist for the Hoffer Montaigne Medal, for *The Scholar of Moab*, Torrey House Press.

2011 Nominated for the Science Fiction Poetry Association's Rhysling Award for "*The five known sutras of Mechanical Man*."

2010 Sunstone Eugene England Memorial Essay Contest, 2nd Place .

2010 Honorable mention in the 2010 Brookie and D.K. Brown Fiction Contest for *The Problem*

2010 *Warp and Weave* Science Fiction Short story 1st place for *Stratton Yellows*.

Other Publications

Peck, S. L. What Intelligent Life in the Universe Will Look Like (Should We Find It); *Analog: Science Fiction and Fact*, March 2015

Peck, S. L. My view: Who will do the science if Western land grab is successful? *Deseret News*, March 17, 2013

Peck, S. L. 2011. Why Nature Matters. *Dialogue*. 44(2): 1-5.

Mike Caprio, John Glaser, Rick Hellmich, David Onstad, and Steven L. Peck. 2010 *Framework for Evaluation of IRM Models*: Report to EPA. Submitted Reference number pending.

Peck, S. L. 2010. Crawling out of the primordial soup: a step toward the emergence of an LDS theology compatible with organic evolution. *Dialogue* 43:1-36

Peck S. L. My Madness. *Dialogue*. 2008. 41:57-70.

Peck, S. L. Science Suffers when getting a grant becomes the goal. (Commentary: 2008). *Chronicle of Higher Education*. Oct. 10th, 2008.

Peck, S. L. America adds a shameful chapter to the history of torture. (op ed: 2008) *Salt Lake Tribune* Op-Ed, 03/07/2008.

Peck, S. L. Intelligent Design fails as a pretense to science that tries to set religion and evolution at odds. (op ed: 2008) *Salt Lake Tribune* Op-Ed, 05/09/2008.

Peck, S. L. 2006. An ecologist's view of LDS culture and the current environmental crisis. In, Handley, G., T. Ball, and S. L. Peck eds. *Sacred Stewardship: LDS Perspectives on the Environment*. Religious Studies Center Publication. Provo, UT.

Handley, G., T. Ball, and S. L. Peck. 2006. *Sacred Stewardship: LDS Perspectives on the Environment*. Religious Studies Center Publication. Provo, UT.

Peck, S. L. 2005. The current philosophy of consciousness landscape: where does LDS thought fit? *Dialogue*. 38: 36-64.

Peck, S. L. 1995. Water, Mud and Insects. *The Friend* (Children's magazine). May 1995.

Heck, W. W., C. L. Campbell, A. L. Finkner, C. M. Hayes, G. R. Hess, J. R. Meyer, M. J. Munster, D. Neher, S. L. Peck, J. O. Rawlings, C. N. Smith, M. B. Tooley. 1993. *Agroecosystem 1992 Pilot Project Plan*. EPA/620/R-93/010.

Peck, S. L., J. O. Rawlings and A. L. Finkner. 1992. A comparison of sampling design options for EMAP-

Agroecosystems Group. *American Statistical Association 1991 Proceedings of the Section on Survey Research Methods*. pp. 191-195.

Heck, W.W., C. L. Campbell, R. P. Breckenridge, G. E. Byers, A. L. Finkner, G. R. Hess, J. R. Meyer, T. J. Moser, S. L. Peck, J. O. Rawlings, and C. N. Smith. 1991. *Environmental Monitoring and Assessment Program (EMAP)- Agroecosystem Monitoring and Research Strategy*. EPA/600/4-91/013.

Peck, S. L. 1988. *A Discrete Event Simulation Of Macarthur-Wilson Equilibrium Theory In Island Biogeography*. Masters Paper For Fulfilling The Requirements For A Master Of Science Degree In Biostatistics At The University Of North Carolina At Chapel Hill.

CURRICULUM VITAE

Updated December 30, 2014

NAME **James Paul Porter, Ph.D.**
Professor

BIRTH Sacramento, California – March 20, 1953

MARRIED	Wife:	Kathy Ann Ziegler, August 14, 1974
	Children:	J. Benjamin (1975)
		Joseph Reed (1976)
		Sarah Brooke (1978)
		Elizabeth Ann (1980)
		Hannah Kathleen (1984)
		Abby Marie (1988)
		Caleb Hyrum (1994)

EDUCATION & TRAINING

B.S. (Zoology)
Brigham Young University
Provo, Utah

M.S. (Zoology)
Brigham Young University
Provo, Utah

Ph.D. (Endocrinology)
University of California
San Francisco, California
William F. Ganong, Advisor December 1982

Postdoctoral Fellow
Department of Pharmacology
University of Iowa
Iowa City, Iowa
Michael J. Brody, Advisor 1982-1985

ACADEMIC APPOINTMENTS

Assistant Professor
Department of Physiology
University of Louisville
Louisville, Kentucky
P.D. Harris, Chairman 1985-1991

Associate in the Center for Applied Microcirculatory Research, University of Louisville	1988-1998
Associate Professor Department of Physiology University of Louisville Irving G. Joshua, Chairman	1991-1998
Visiting Scholar Department of Biochemistry Vanderbilt University Nashville, Tennessee	9/1995-2/1996
Associate Professor Department of Zoology Brigham Young University Provo, Utah John D. Bell, Chairman	1998-2001
Professor Department of Physiology & Developmental Biology Brigham Young University Provo, Utah Dixon Woodbury, Chairman	2001-
Faculty Neuroscience Center Brigham Young University Edwin D. Lephart, Director	1999-
Chair Department of Physiology & Developmental Biology Brigham Young University Provo, Utah	2003-2008
Associate Dean College of Life Sciences Brigham Young University Provo, UT	2008-

ADMINISTRATIVE EXPERIENCE

Chair, Department of Physiology & Developmental Biology	2003-2008
Associate Dean College Associate Dean's Council Rank and Status Portfolio reviews College Chair's Council Faculty Candidate interviews Resource Planning	2008-present
College Curriculum Council, Chair University Committee on Teacher Ed. Learning Outcomes and Assessment Teaching and Learning for the College Shared Teaching assignments Transfer Faculty, assignments Evening Classes, approvals General Education, reaccreditation of courses University Curriculum Council, member College Graduate Council, Chair Advising, oversight of Director of Advisement Continuity Plan, development	2008-2011
MEG/ORCA Reviews, oversight ORCA Summary Sheets University Faculty Development and Research Committee College Research Faculty Profile System College Facilities Life Sciences Greenhouses construction Life Sciences Building construction Vehicle inventory and parking CNA projects College storage College Computer Support, supervise Danny Yeo Science Support Shop, supervise Jim Armstrong Safety and Compliance, supervise Rebecca Scholl Electron Microscope Facility, member of Executive Committee MRI Facility, member of Executive Committee	2011-present
College Research Awards College Research Development	2014-present

TEACHING

1985-1998	<u>Department of Physiology, University of Louisville</u> Human Physiology (Medical School) Elements of Human Physiology (Dental School) Principles of Oral Presentation Hypertension: Neural and Endocrine Mechanisms
1994 – 2003	<u>Kaplan/National Medical School Review</u> USMLE Step I Review Courses <ul style="list-style-type: none">▪ Endocrinology▪ Digestive Physiology
1996 – 2003	<u>Ross University School of Medicine, Dominica, West Indies</u> Advanced Integrated Sciences Program, Visiting Professor
1998 -	<u>Brigham Young University</u> Principles of Physiology (Zoology 460, PDBio 362,363) Pathophysiology (Zoology 361, PDBio 365) Tissue Biology (PDBio 225 (one semester)) Cellular and Molecular Physiology (PDBio 601 (team-taught)) Science of Biology (PDBio 120, since 2008)

SOCIETY AFFILIATIONS

American Physiological Society
Endocrine Society

PROFESSIONAL ACTIVITIES

Manuscript reviews

American Journal of Physiology: Endocrinology and Metabolism
American Journal of Physiology: Regulatory, Integrative, and Comparative
American Journal of Physiology: Heart and Circulatory Physiology
Pharmacology Research
Regulatory Peptides
Synapse
Hypertension
Brain Research
Brain Research Bulletin
Endocrinology
Kidney International

Judge

Eighteenth Midwest Student Medical Research Forum	1987
ISEF International Science and Engineering Fair	1997
Local Organizing Committee, Fifth World Congress For Microcirculation	1989-1991

Mentor for APS Minority Fellowship Program, Fall APS Conference	1991
Chairman, "Physiology of Genetic Hypertension." Slide session at FASEB meeting	1991
American Heart Association, Kentucky/Kansas Affiliates Peer Review Committee	1995-1997

AWARDS

President's Young Investigator Award, University of Louisville	1988
Golden Apple, Teacher of the Year Award, University of Louisville Medical Student Association	1994,1997

RESEARCH INTERESTS

Neuroendocrine regulation of the cardiovascular system; neural and humoral mechanisms of hypertension

TRAINEES

A. Postdoctoral Fellows

1. Shirley Whitescarver, Ph.D., 1993-1994
2. Ehsan Qadir, M.D., 1993-1994

B. Graduate Students - University of Louisville

1. Tina Hines, Ph.D., 1989. Dissertation title: Cardiovascular Effects of Peripheral and Central Pressor Stimuli in the Pregnant Rat.
2. Jennie Mangun, M.S., 1992, Thesis title: The Effect of Renal Nerve Stimulation on Renin Secretion, Sodium Excretion, and Renal Blood Flow in the Spontaneously Hypertensive Rat.
3. Glenn Toney, Ph.D., 1992. Dissertation title: Cardiovascular Effects of Central Angiotensin II: Mediation by Brain Angiotensin II Receptor Subtypes in Conscious Rats.
4. Caroline Young, M.S., 1994. Thesis title: The Effect of Intrahypothalamic Insulin Injection on Mean Arterial Pressure, Heart Rate, and Renal Nerve Activity in the Streptozotocin Diabetic Rat.
5. Harshad Bokil, Ph.D., 1998, Effect of Insulin on Brain Angiotensin II (AT1) Receptor Expression and Function.

Graduate Students - Brigham Young University

6. Steve Swenson, M.S., 2002, Effect of a Perinatal High-Salt Diet on Blood Pressure Control Mechanisms in Sprague Dawley Rats.
7. April Honeycutt, M.S. 2003-2004, Determining a Critical Period and Mechanism for Hypertension Due to Perinatal High Salt Diet in the Juvenile Sprague-Dawley Rat
8. Summer King, M.S. 2005-2007, Maternal High-Salt Diet During Pregnancy in Sprague-Dawley Rats Programs Exaggerated Stress-Induced Blood Pressure and Heart Rate Responses in Adult Female Offspring
9. Clinton Johnson, M.S. 2010-2011, Mechanisms of Prenatal High-salt “Fetal Programming” Resulting in Stress Hyperresponsiveness in the Adult Female Offspring in the Sprague Dawley Rat.

C. Summer Medical School or Dental School Scholars

1. Mark Schroer, 1986, 1987
2. David Kabithe, 1994

D. Undergraduate Summer Research Program, Univeristy of Louisville

1. Teresa Wagner, 1986
2. Shawna Perkins, 1987, 1988
3. Alphonzo Nichols, 1996, 1997
4. James Harrison, 1997

E. ORCA Undergraduate Scholars, Brigham Young University

1. Andrew Hill, 1999
2. Jason Rich, 2000
3. Jared Anderson, 2000
4. Ben Ilum, 2005
5. Tim Jenkins, 2008
6. Brandon Wilkinson, 2008

F. NSF REU Site Summer Students, Brigham Young University

1. Danielle Wright, 2000
2. Nicole Amundson, 2001
3. Guibenson Hyppolite, 2001
4. Kristen Poltraz, 2002

GRANT SUPPORT HISTORY

1. American Heart Association, Kentucky Affiliate
“Central Neural Regulation of Renin Secretion”

- Principal Investigator** \$16,766, 7/86-6/87
2. National Institutes of Health, R29
 “Central Neural and Humoral Control of Renin Release
Principal Investigator \$165,319, 8/87-7/91
 3. American Heart Association, Kentucky Affiliate
 “Regulation of Renin Secretion by Central Angiotensin”
Principal Investigator \$14,576, 7/87-6/88
 4. American Heart Association, Kentucky Affiliate
 “Neural Control of Renin Release in the SHR”
Principal Investigator \$17,137, 7/1/90-6/30/91
 5. American Heart Association, Kentucky Affiliate
 “Control of Renin Release in Hypertension: Neural Mechanisms”
Principal Investigator \$16,679, 7/1/91-6/30/92
 6. National Institutes of Health, R01
 “Physiologic Role of Endogenous Digitalis-Like Factor”
Co-Investigator to Roland Valdes, Jr. \$158,454, 4/1/92-3/31/95
 7. American Heart Association, Kentucky Affiliate
 “Insulin and the Central Nervous System: Effect on Cardiovascular Function in Insulin-Resistant States”
Principal Investigator \$29,700, 7/1/92-6/30/94
 8. American Heart Association, Kentucky Affiliate
 “Neuromodulatory Role of Insulin in Insulin Resistance”
Principal Investigator \$28,705, 7/1/94-6/30/97
 9. National Institutes of Health, R03
 “Effects of Endothelin on Renal Vascular Resistance”
Co-Investigator to Jeff C. Falcone \$50,000, 4/1/98-3/31/99
 10. American Heart Association, Midwest Consortium
 “Renal Alpha1 Adrenergic Dysfunction in Aging”
Co-Investigator to John C. Passmore \$59,118, 7/1/98-6/30/00
 11. American Heart Association, Western States Affiliate
 “Effect of Stress on Blood Pressure Control Mechanisms in Young Rats: Role of Brain Angiotensin II”
Principal Investigator \$117,674, 7/1/00 –6/30/02
 12. American Heart Association, Western States Affiliate
 “Short- and Long-term Effects of Maternal Separation on Blood Pressure Control in Rats”

Principal Investigator \$120,000, 7/1/02-6/30/05

13. American Heart Association, Western States Affiliate
“Mechanisms of Fetal Programming of Hypertension by Maternal High-Salt Diet”

Principal Investigator \$140,000, 7/1/05-6/30/08

14. Brigham Young University, Mentored Environment Grant
“Role of oxygen free radicals in the exaggerated cardiovascular response to stress programmed by prenatal high salt”

Principal Investigator \$19,990, 2/1/08-1/31/09.

PUBLICATIONS:

1. **Porter, J.P.** and W.F. Ganong. Relation of vasoactive intestinal polypeptide to renin secretion. In: Vasoactive Intestinal Peptide, ed. S.I. Said, Raven Press, New York, pp. 285-297, 1982.
2. **Porter, J.P.**, I.A. Reid, S.I. Said, and W.F. Ganong. Stimulation of renin secretion by vasoactive intestinal peptide. *Am. J. Physiol.* 243:F306-F310, 1982.
3. **Porter, J.P.**, S.I. Said, and W.F. Ganong. Vasoactive intestinal peptide stimulates renin secretion in vitro: evidence for a direct action of the peptide on renal juxtaglomerular cells. *Neuroendocrinology* 36:404-408, 1983.
4. Brody, M.J., J.E. Faber, M.L. Mangiapane, and **J.P. Porter**. The central nervous system and prevention of hypertension. In: Handbook of Hypertension, Vol. 4, ed. W. de Jong, Elsevier Science Publishers B.V., Amsterdam, pp. 474-494, 1984.
5. Brody, M.J., J.E. Faber, M.L. Mangiapane, and **J.P. Porter**. Central neural and humoral regulation of arterial pressure in hypertension. In: Hypertension: Physiological Basis and Treatment, ed. H.N. Ong and J.C. Lewis, Academic Press, Orlando, pp. 1-48, 1984.
6. Ganong, W.F., **J.P. Porter**, T.D. Bahnson, and S.I. Said. Peptides and neurotransmitters that affect renin secretion. *J. Hypertension* 2(Suppl. 1):75-82, 1984.
7. Brody, M.J., R.L. Webb, M.L. Mangiapane, **J.P. Porter**, A.C. Bonham, and A.J. Trapani. Comparative central and peripheral antihypertensive mechanisms of urapidil and prazosin. *Am. J. Med.* 77(4A):74-80, 1984.
8. Brody, M.J., T.P. O'Neill, and **J.P. Porter**. Role of central catecholaminergic systems in pathogenesis and treatment of hypertension. *J. Cardiovasc. Pharmacol.* 6 (Suppl V):S727-S741, 1984.

9. **Porter, J.P.**, A. Bonham, M.L. Mangiapane, R.L. Webb, and M.J. Brody. Cardiovascular effects of centrally and peripherally administered indoramin in the conscious rat. *Eur. J. Pharmacol.* 109:9-17, 1985.
10. **Porter, J.P.** and M.J. Brody. Neural projections from paraventricular nucleus which subserve cardiovascular function. *Am. J. Physiol.* 248:R271-R281, 1985.
11. **Porter, J.P.**, T.N. Thrasher, S.I. Said, and W.F. Ganong. Role of vasoactive intestinal peptide in the regulation of renin secretion. *Am. J. Physiol.* 249:F84-F89, 1985.
12. **Porter, J.P.** and M.J. Brody. A V1 vasopressin receptor antagonist has nonspecific neurodepressant action in the spinal cord. *Neuroendocrinology* 43:75-78, 1986.
13. **Porter, J.P.** and M.J. Brody. A comparison of the hemodynamic effects produced by electrical stimulation of subnuclei of the paraventricular nucleus. *Brain Res.* 375:20-29, 1986.
14. **Porter, J.P.** and M.J. Brody. Spinal vasopressin mechanisms of cardiovascular regulation. *Am. J. Physiol.* 251:R510-R517, 1986.
15. Brody, M.J., T.P. O'Neill, and **J.P. Porter**. The paraventricular and arcuate nuclei in cardiovascular regulation. In: Central and Peripheral Mechanisms of Cardiovascular Regulation, ed. A. Magro, W. Osswald, D.Reis, and P. Vanhoutte, Plenum, New York, pp.443-464, 1986.
16. **Porter, J.P.** and M.J. Brody. The paraventricular nucleus and cardiovascular regulation: role of spinal vasopressinergic mechanisms. *J. Hypertension* 4 (Suppl. 3):S181-S184, 1986.
17. Brody, M.J., R. Alper, T.P. O'Neill, and **J.P. Porter**. Central neural control of the cardiovascular system. In: Handbook of Hypertension, Vol. 8, ed. A. Zanchetti and R.C. Tarazi, Elsevier Science Publishers B.V., Amsterdam, pp.1-25, 1987.
18. **Porter, J.P.** Electrical stimulation of the paraventricular nucleus increases plasma renin activity. *Am. J. Physiol.* 254:R325-R330, 1988.
19. **Porter, J.P.** The renin-response to aortic occlusion is enhanced by stimulation of the hypothalamus. *Hypertension* 12:52-58, 1988.
20. Changaris, D.G., **J.P. Porter**, J.J. Miller, and R.S. Levy. Des-leu angiotensin I: biosynthesis and drinking response. *Reg. Peptides* 20:273-280, 1988.
21. **Porter, J.P.** and W.F. Ganong. VIP and renin secretion. In: Vasoactive Intestinal Peptide and Related Peptides, ed. S.I. Said and V. Mutt. *Annal. NY Acad. Sci.* 527:465-477, 1988.
22. **Porter, J.P.** Stress can enhance the renin response to reduced renal perfusion pressure. *Am. J. Physiol.* 256:R554-R559, 1989.

23. Hines, T.* and **J.P. Porter**. Role of central angiotensin II in control of blood pressure during pregnancy. *Am. J. Physiol.* 257:R1457-R1461, 1989.
24. **Porter, J.P.** Effect of stress on the control of renin release in spontaneously hypertensive rats. *Hypertension* 15:310-317, 1990.
25. Hines, T.* and **J.P. Porter**. The pressor response to posterior hypothalamic stimulation is enhanced in the pregnant rat. *Am. J. Physiol.* 262:R604-R609, 1992.
26. Fleming, J.T., C. Zhang, J. Chen, and **J.P. Porter**. Selective preglomerular constriction to nerve stimulation in rat hydronephrotic kidneys. *Am. J. Physiol.* 262:F348-F353, 1992.
27. **Porter, J.P.** β -Adrenoceptor modulation of the renin response to short-term reuctions in pressure in the young SHR. *Am. J. Physiol.* 263:R405-R411, 1992.
28. Toney, G.M.* and **J.P. Porter**. Functional role for brain AT1 and AT2 receptors in the central angiotensin II pressor response. *Brain Res.* 603-57-63, 1993.
29. Toney, G.M.* and **J.P. Porter**. Functional roles of brain AT1 and AT2 receptors in the central angiotensin II pressor response in conscious young spontaneously hypertensive rats. *Dev. Brain Res.* 71:193-199, 1993.
30. Toney, G.M.* and **J.P. Porter**. Effects of brain AT1 and AT2 receptor blockade on the central angiotensin II pressor response in conscious spontaneously hypertensive rats. *Neuropharmacology* 32:581-589, 1993.
31. **Porter, J.P.** Contribution of spinal N-methyl-D-aspartic acid receptors to control of sympathetic outflow by the paraventricular nucleus. *Brain Res. Bull.* 32:653-660. 1993.
32. **Porter, J.P.** Effect of intrahypothalamic insulin on sympathetic nervous function in rats drinking a high-sucrose solution. *Am. J. Physiol.* 266:R1463-R1469, 1994.
33. Waldrop, T.G. and **J.P. Porter**. Hypothalamic involvement in respiratory and cardiovascular regulation. In: Regulation of Breathing, 2nd Edition, ed. J.A. Dempsey and A. Peck, Marcel-Dekker, pp. 315-364, 1994.
34. Inman, S.R., **J.P. Porter**, and J.T. Fleming. Reduced renal microvascular reactivity to angiotensin II in diabetic rats. *Microcirculation* 1:137-145, 1994.
35. Qadir, E**. and **J.P. Porter**. Effect of insulin on regional vascular resistances in conscious rats. *Am. J. Physiol.* 270:R450-R455, 1996.

36. Inman, S.R., **J.P. Porter**, and J.T. Fleming. Dietary myo-inositol restores diabetic renal arteriolar reactivity to angiotensin II but not to norepinephrine. *Microcirculation* 3:191-198, 1996.
37. **Porter, J.P.** Contributor. *Board Simulator Series*, ed. E.F. Golijan. Williams and Wilkins, Baltimore, 1st Edition, 1996, 2nd Edition, 1997.
38. **Porter, J.P.**, I.G. Joshua, D. Kabithe, and H.Bokil. Vasodilator effect of insulin on the microcirculation of the rat cremaster muscle. *Life Science* 61:673-684, 1997.
39. **Porter, J.P.** and H.S. Bokil. Effect of intracerebroventricular and intravenous insulin on fos-immunoreactivity in the rat brain. *Neuroscience Letters* 224:161-164, 1997.
40. Tang, H., D.F. Guo, **J.P. Porter**, Y. Wanaka, and T. Inagami. Role of cytoplasmic tail of the type 1A angiotensin II receptor in agonist- and phorbol ester-induced desensitization. *Circ. Res.* 82:523-531, 1998.
41. **Porter, J.P.** Chronic intracerebroventricular infusion of angiotensin II increases brain AT1 receptor expression in young rats. *Dev. Brain Res.* 112:293-295, 1999.
42. Bokil, H.S.* and **J.P. Porter**. Brain angiotensin type 1 receptor expression and function in the Zucker obese rat. *Neurosci. Lett.* 28:139-142, 2000.
43. Zhao, H., I.G. Joshua, and **J.P. Porter**. Microvascular responses to endothelin in deoxycorticosterone acetate-salt hypertensive rats. *Am. J. Hypertens.* 13:819-826, 2000.
44. **Porter, J.P.** Contribution of central angiotensin II to acute stress-induced changes in baroreflex function in young rats. *Am. J. Physiol.*, 279:R1386-R1391, 2000.
45. **Porter, J.P.**, J.M. Anderson[†], R.J. Robison[†], and A.C. Phillips[†]. Effect of central angiotensin II on body weight gain in young rats. *Brain Res.* 959:20-28, 2003.
46. Swenson*, S.J., R. Speth, and **J.P. Porter**. Effect of a perinatal high-salt diet on blood pressure control mechanisms in young Sprague-Dawley rats. *Am. J. Physiol.* 286:R764-R-770, 2004.
47. **Porter, J.P.** and K.R. Potratz[†]. The effect of icv angiotensin II on body weight and food intake in adult rats. *Am J. Physiol.* 287:R422-R428, 2004.
48. **Porter, J.P.**, A. Phillips[†], J. Rich[†], and D. Wright[†]. Effect of chronic stress on the cardiac baroreflex in the post-weanling rat. *Life Sciences* 75:1595-1607, 2004.
49. Lephart, E.D., **J.P. Porter**, D.W. Hedges, T.D. Lund, K.D.R. Setchell. Phytoestrogens: Implications in Neurovascular Research. *Current Neurovascular Research* 1:455-464, 2004.

50. Lephart, E.D., **J.P. Porter**, T.D. Lund, L-H. Bu, K.D.R. Setchell, D. Ramoz, and W.R. Crowley. Dietary isoflavones alter regulatory behaviors, metabolic hormones and neuroendocrine function in Long-Evans rats. *BioMedCentral Nutrition and Metabolism* 10.1186/1743-7075-1-16, 2004.
51. Passmore, J.C., P.P. Rowell, I.G. Joshua, **J.P. Porter**, D.H. Patel, and J.C. Falcone. Alpha 1 adrenergic receptor control of renal blood vessels during aging. *Can. J. Physiol. Pharmacol.* 83:335-342, 2005.
52. **Porter, J.P.**, Summer H. King*, and April D. Honeycutt*. Prenatal high-salt diet in the Sprague Dawley rat programs blood pressure and heart rate hyperresponsiveness to stress in adult female offspring. *Am. J. Physiol. Regul. Integr. Comp. Physiol.* 293:R334-R342, 2007.
53. Woods, A.M, C.J. McIlmoil, E.N. Rankin, A.A. Packer, J.C. Stevens, J.A. Macievic, A.B. Brown, **J.P. Porter**, and A.M. Judd. Leukemia inhibitory factor protein and receptors are expressed in the bovine adrenal cortex and increase cortisol and decrease adrenal androgen release. *Domest. Anim. Endocrinol.* 35:217-230, 2008.
54. **Porter, J.P.** and S. H. King*. Prenatal high salt programs enhanced sympathoadrenal activation of the cardiovascular response to restraint. *Auton. Neurosci. Basic Clin.* 150:140-143, 2009.
55. Thatcher, M.O., Tippetts, T.S., Nelson, M.B., Swensen, A.C., Winden, D.R., Hansen, M.E., Anderson, M.C., Johnson, I.E., **Porter, J.P.**, Prince, J.T., Reynolds, P.R., and Bikman, B.T. Ceramides mediate cigarette smoke-induced metabolic disruption in mice. *Am. J. Physiol. Endo. Metab., epub.* Sept. 30, 2014.

* mentored graduate student

** mentored postdoctoral fellow

† mentored undergraduate student

ABSTRACTS

1. **Porter, J.P.**, I.A. Reid, S.I. Said, and W.F. Ganong. Effect of vasoactive intestinal polypeptide on renin secretion in dogs. *Fed. Proc.* 39:946, 1980.
2. **Porter, J.P.**, S.I. Said, and W.F. Ganong. Vasoactive intestinal peptide stimulates renin secretion in vitro. *Fed. Proc.* 41:1232, 1982.
3. **Porter, J.P.** and M.J. Brody. Monosynaptic projections from paraventricular nucleus to spinal cord may have vasomotor function. *Fed. Proc.* 42:584, 1983.
4. **Porter, J.P.** and M.J. Brody. Neural projections from paraventricular nucleus responsible for cardiovascular function pass through ventrolateral medulla. *Neurosci. Abstr.* 9:182, 1983.

5. **Porter, J.P.**, A. Bonham, M.L. Mangiapane, R.L. Webb, and M.J. Brody. Cardiovascular effects of indoramin in the conscious rat. *Circulation* 68:III-321, 1983.
6. **Porter, J.P.**, M. Jacobs, and M.J. Brody. Selective destruction of magnocellular neurons using retrograde transport of ricin. *Fed. Proc.* 43:310, 1984.
7. **Porter, J.P.** and M.J. Brody. Do vasopressin-containing neurons in the spinal cord influence vasomotor outflow? *The Physiologist* 27:224, 1984.
8. Brody, M.J., T.P. O'Neill, **J.P. Porter**, A.C. Bonham, and P. Neddleman. Baroreflex dependent hemodynamic effects of synthetic atriopeptins. *Hypertension* 6:783, 1984.
9. **Porter, J.P.** and M.J. Brody. A vasopressin antagonist has nonspecific neurodepressant actions in the spinal cord. *Fed. Proc.* 44:1347, 1985.
10. **Porter, J.P.** and M.J. Brody. Role of spinal vsopressinergic mechanisms in the cardiovascular effects produced by stimulation of the paraventricular nucleus. *Neurosci. Abst.* 11:36, 1985.
11. **Porter, J.P.** Low-level electrical stimulation of the paraventricular nucleus increases plasma renin activity in conscious rats. *Neurosci. Abstr.* 12:539, 1986.
12. **Porter, J.P.** Electrical stimulation of the paraventricular nucleus enhances the renin-response to suprarenal aortic occlusion. *Fed. Proc.* 46:844, 1987.
13. **Porter, J.P.** and M.A. Schroer[†]. Does intrathecally administered vasopressin produce its peripheral cardiovascular effects by compromising spinal blood flow? *Neurosci. Abstr.* 13:1280, 1987.
14. **Porter, J.P.** Effect of acute stress on the renin-response to aortic occlusion in the conscious rat. *FASEB J.* 2:A1689, 1988.
15. **Porter, J.P.** Acute stress augments the renin-response to aortic occlusion in spontaneously hypertensive rats. *Physiologist* 31:A165, 1988.
16. C. Zhang, **J.P. Porter**, and J.T. Fleming. Selective arteriolar constriction to nerve stimulation in rat hydronephrotic kidneys. *Kid. Internatl.* 32:376, 1989.
17. Hines, T* and **J.P. Porter**. Pressor response to intracerebroventricular angiotensin II is not blunted in pregnancy. *FASEB J.* 3:A1015, 1989.
18. **Porter, J.P.** The effect of air-stress on renin release in the young SHR. *FASEB J.* 3:A852, 1989.
19. **Porter, J.P.** Effect of surgical stress on renin release-mechanisms in the young SHR. *Proc. IUPS* 17:48, 1989.

20. **Porter, J.P.** Does tonic sympathetic outflow contribute to the sensitivity of pressure-dependent renin release in the young SHR? FASEB J. 4:A553, 1990.
21. Hines, T* and **J.P. Porter.** Cardiovascular responses to peripheral and central pressor stimuli in the conscious pregnant rat. FASEB J. 4:A1193, 1990.
22. **Porter, J.P.** Spinal NMDA receptors contribute to cardiovascular responses evoked by hypothalamic stimulation. Neurosci. Abstr. 16:216, 1990.
23. Hines, T* and **J.P. Porter.** The pressor response to posterior hypothalamic stimulation is enhanced in the pregnant rat. Clin. & Exp. Hyperten. B10:154, 1991.
24. **Porter, J.P.** SHR exhibit a diminished β_1 adrenoceptor-induced enhancement of pressure-dependent renin release. FASEB J. 5:A663, 1991.
25. Toney, G.M* and **J.P. Porter.** Plasma renin activity is stimulated by angiotensin II microinjections into the median preoptic nucleus following vasopressin (V1) receptor blockade. FASEB J. 5:A667, 1991.
26. **Porter, J.P.** Effect of hypothalamic injections of insulin on blood pressure and renal nerve activity in urethane-anesthetized rats. Physiologist 34:230, 1991.
27. Toney, G.M.* and **J.P. Porter.** AT₁ receptor blockade by central DUP753 completely prevents the sympathetic but not the vasopressin component of the central angiotensin II response. Physiologist 34:230, 1991.
28. Magnun, J* and **J.P. Porter.** The effect of direct neural stimulation on renin secretion in young SHR. Physiologist 34:238, 1991.
29. Fleming, J.T., J. Chen, S.R. Inman*, and **J.P. Porter.** Vascular responsiveness of hydronephrotic and normal kidneys to norepinephrine and angiotensin II. Proc. 5th World Congress for Microcirc., 1991.
30. Chen, J*, **J.P. Porter,** and J.T. Fleming. Hydronephrotic kidney vascular responses to increases in renal nerve activity. Proc. 5th World Congress for Microcirc., 1991.
31. Toney, G.M* and **J.P. Porter.** Attenuation of the vasopressin-dependent central angiotensin pressor response by AT₁ receptor blockade is enhanced by AT₂ receptor blockade. FASEB J. 6:A1012, 1992.
32. **Porter, J.P.** and C. Young*. Effect of hypothalamic injections of insulin on renal nerve activity in conscious rats. FASEB J. 6:A1165, 1992.
33. **Porter, J.P.** Evidence for a central cardiovascular effect of peripheral insulin. FASEB J. 7:A554, 1993.

34. **Porter, J.P.** Effect of icv insulin on fos expression in the hypothalamus and medulla. *FASEB J.* 9:A377, 1995.
35. Guo, D.F., H. Tang, **J.P. Porter**, and T. Inagami. Interferon- γ upregulates rat angiotensin II type 1A receptor in cultured vascular smooth muscle cells. *FASEB J.* 10:A344, 1996.
36. Tang, H., D.F. Guo, **J.P. Porter**, and T. Inagami. Truncation of the receptor carboxyl terminus impairs agonist-induced desensitization of the type-1A angiotensin II receptor. *Hypertension* 28:530, 1996.
37. Guo, D.F., H. Tang, **J.P. Porter**, and T. Inagami. A novel gene associated with angiotensin II type I receptor may mediate the receptor desensitization. *Hypertension* 28:534, 1996.
38. Bokil, H.S.* and **J.P. Porter**. Effect of streptozotocin-induced diabetes on brain renin angiotensin system. *FASEB J.* 11:A250, 1997.
39. Zhao, H.* , I.G. Joshua, and **J.P. Porter**. Enhanced endothelin-B receptor-mediated vasoconstriction during deoxycorticosterone acetate-salt hypertension. *FASEB J.* 12:A97, 1998.
40. Bokil, H.S.* and **J.P. Porter**. Effect of streptozotocin-induced diabetes on JAK2 in the kidney cortex. *FASEB J.* 12:A259, 1998.
41. **Porter, J.P.** Long-term icv angiotensin II increases brain AT1 receptor protein expression in young rats. *FASEB J.* 12:A53, 1998.
42. **Porter, J.P.** Postnatal stress can affect development of cardiovascular control mechanisms via a central AT1 receptor mechanism. *Neurosci. Abstr.* 25:1950, 1999.
43. **Porter, J.P.** and J.M. Anderson[†]. Chronic icv infusion of ANG II decreases food intake and weight gain in young rats. *Soc. Neurosci. Abstr.* Vo. 26, 2000.
44. **Porter, J.P.**, J. Rich[†], and D. Wright[†]. Maturation of baroreflex in young rats: effect of stress. *FASEB J.* 15:A1147, 2001.
45. A.M. Woods, C.J. McLlmoil, E. Nunez, A. Harman, J.A. Chudleigh, J.A. Macievic, A.B. Brown, **J.P. Porter**, and A.M. Judd. Leukemia inhibitory factor and interleukin-4 increase cortisol release and decrease androgen release from bovine adrenal cells. 83rd Annual Meeting of the Endocrine Society, p.363, 2001.
46. B.J. Williams, J.A. Macievic, A.M. Woods, **J.P. Porter**, and A.M. Judd. Interleukin-6 increases cortisol release from bovine adrenal cells through the JAK2/STAT pathway. 83rd Annual Meeting of the Endocrine Society, p.488, 2001.

47. T.D. Lund, **J.P. Porter**, and E.D. Lephart. Body weight and metabolic regulatory factors are influenced by dietary soy phytoestrogens. 83rd Annual Meeting of the Endocrine Society, p.514, 2001.
48. E.D. Lephart, **J.P. Porter**, and T.D. Lund. Cardiovascular and metabolic effects of dietary soy phytoestrogens. 4th International Soy Symposium, 2001, in press.
49. Swenson, S.J.* and **J.P. Porter**. Perinatal high-salt diet causes hypertension and desensitizes baroreflex in young Sprague Dawley rats. Soc. Neurosci. Abst. Vol. 27, Program No. 170.1, 2001.
50. **J.P. Porter**, J.N. Munyan[†], and A.R. Brown[†]. The effect of maternal separation on baroreflex function is sexually dimorphic. Program 772.3, Soc. for Neurosci. 2002, CD ROM.
51. **J. P. Porter** and K. Potratz[†]. Effect of icv ANG II on food intake and energy expenditure in adult rats. FASEB J. 17:A742, 2003.
52. **J.P. Porter**, D. Behrmann[†], and A. Curtis[†]. Maternal separation reduces AT1 receptor mRNA expression in PVN of female, but not male, Sprague Dawley rats. Program 397.1, Soc. for Neurosci. 2003, CD ROM.
53. Honeycutt, A.D.* and **J.P. Porter**. Determining a critical period for hypertension programming in the juvenile Sprague-Dawley rat due to perinatal high salt exposure. FASEB Late Breaking Abstracts, A102, 2004.
54. **J.P. Porter**, E.B. Taylor, and W.W. Winder. Exercise training decreases expression of AT₁ receptor in PVN of adult rats. 2005 Experimental Biology and XXXV International Congress of Physiological Sciences meeting abstracts [on CD-ROM]. The FASEB Journal, 19, Abstract #357.20
55. **J.P. Porter** and S. King*. Effect of maternal high-salt diet during pregnancy on blood pressure and heart rate of adult offspring: A radiotelemetry study. Program 471.3, Experimental Biology 2006, CD ROM.
56. **J.P. Porter**, Summer H. King*, Sean F. Edmunds[†], Matthew C. Gertsch[†], and Joshua P. Thatcher[†]. Maternal high-salt diet during pregnancy programs exaggerated stress-induced pressor response in adult female offspring. Program 454.16, Soc. For Neurosci. 2006, CD ROM.
57. **J.P. Porter**, Summer H. King*, Stephen J Adolphson[†], and Terrence W. Andrews[†]. Microarray analysis of gene expression in brains of adult female offspring of rats fed high salt during pregnancy. FASEB J 21:A1410, 2007
58. K. Fabick, C. Blake, **J.P. Porter**, K.D.R. Setchell, and E.D. Lephart. Positive benefits of consuming soy-derived isoflavones on body weight gain and cardiovascular health examined in an ovariectomized rat model. FASEB J 21:A694, 2007

59. **J.P. Porter**, S. King*, M. Petrini[†], and M. Rau[†]. The contribution of the sympathetic nervous system to the stress-induced pressor and tachycardic hyperresponsiveness programmed by prenatal high salt. Program 738.22, Experimental Biology, 2008, CD ROM.
60. **J.P. Porter**, C. Johnson[†], K. Rogers[†]. Expression of soluble epoxide hydrolase (SEH) in brains of female offspring of rats fed high salt during pregnancy. The FASEB J 1019.12, 2010.
61. M.D. Squires[†], M.S. De Silva*, J.T. Johnson[†], J.C. Reese[†], A.P. Dalley[†], L.S. Greenburg[†], **J.P. Porter**, A.M. Judd. Interleukin-6 alters the expression of steroidogenic proteins in bovine adrenal zona fasciculata through activation of AMP-activated protein kinase. Endocrine Society Meeting 2015, *Endocrine Reviews*, 2015, in press.
62. J.C. Reese[†], M.S. De Silva*, J.T. Johnson[†], M.D. Squires[†], L.S. Greenburg[†], A.P. Dalley[†], **J.P. Porter**, A.M. Judd. Activator protein-1 complex functions as a biological intermediate in the interleukin-6 and AMP-activated protein kinase regulation of steroidogenic enzymes in the bovine zona fasciculata. Endocrine Society Meeting 2015, *Endocrine Reviews*, 2015, in press.

* mentored graduate student

** mentored postdoctoral fellow

[†] mentored undergraduate student

INVITED PRESENTATIONS

1. Wenner-Gren Research Laboratory, University of Kentucky, 1986.
2. Division of Physiology and Anatomy, Brigham Young University, Provo, UT, 1987
3. “VIP and Renin Secretion,” presented at New York Academy of Sciences Symposium, Vasoactive Intestinal Peptide and Related Peptides, 1987.
4. Department of Biology, University of Louisville, 1988.
5. Department of Ophthalmology and Visual Sciences, University of Louisville, 1989
6. Department of Physiology, University of Louisville, 1989,1994
7. Department of Biology, Kentucky State University, 1993
8. Department of Biology, Northern Kentucky University, 1993
9. Center for Applied Microcirculatory Research, University of Louisville, 1997
10. Department of Zoology, Brigham Young University, Provo, UT, 1998.

11. Department of Physiology, University of Texas at San Antonio, San Antonio, TX, 1999.
12. Department of Biology, Utah Valley State College, Orem, UT, 2007.
13. Department of Biology, Southern Utah University, Cedar City, UT, 2010.
14. Brigham Young University Devotional, 2011

CURRICULUM VITAE

Clyde L. Pritchett

Sources:

<http://www.utahvalleyfuneral.com/obituaries/Clyde-Pritchett/#!/Obituary>

Biosis Citation Index, Web of

Science http://apps.webofknowledge.com/Search.do?product=BCI&SID=3COgTqR78KN6z7WpJnA&search_mode=GeneralSearch&prID=6300954f-7557-42ef-9485-e13967da4ce1

The Great Basin Naturalist 50-Year index, Volumes 1-50, 1939-1990. *Great Basin Naturalist* 51:1-108, 1991. <https://ojs.lib.byu.edu/spc/index.php/wnan/issue/view/2148>

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: 4 April 1926, Mount Pleasant, Utah

Death: 9 December 2014, Orem, Utah

Education:

BS, Brigham Young University, 1955

MS, Brigham Young University, 1962

PhD, University of Wyoming, 1977

Employment:

Faculty Member, Department of Zoology, Brigham Young University, 1968-1971

Teaching:

Vertebrate Zoology

Natural History of the Vertebrates

Natural History for Elementary Teachers

Applied Ecology Concepts

Publications:

Pritchett CL. Vertebrate distribution in relation to certain habitats in central Kane County, Utah. Thesis, Brigham Young University, 1962.

Pritchett CL, and Allred DM. A guide to field studies in natural history. Brigham Young University, Provo, Utah, 1974.

Pritchett CL, and Murdock JR. The influence of selected native rodents on selected plant species in a Mormon-tea grass community. In Proceedings, Symposium and Workshop Wildland Shrubs, Provo, Utah

USA, Nov 4-7, 1975. 168 p. US Forest Service, Shrub Science Laboratory, Provo, Utah USA, 146 pgs, 1975.

Pritchett CL., Porter RD, and Wood BW. Terrestrial vertebrate fauna of the Kaiparowits Basin. *Great Basin Naturalist* 40:303-350, 1980.

Pritchett CL, Frost HH, and Tanner WW. Terrestrial vertebrates in the environs of Utah USA Lake. *Great Basin Naturalist Memoirs* (5):128-168, 1981.

Smith HD, Oveson MC, and Pritchett CL. Characteristics of mule deer beds. *Great Basin Naturalist* 46:542-546, 1986.

Dobson ML, Pritchett CL, and Sites JW. Genetic variation and population structure in the cliff chipmunk, *Eutamias dorsalis*, in the Great Basin of western Utah. *Great Basin Naturalist* 47:551-561, 1987.

Pritchett CL, Nilsen JA, Coffeen MP, and Smith HD. Pygmy rabbits in the Colorado River drainage. *Great Basin Naturalist* 47:231-233, 1987

Pritchett CL, and Alfonzo JM. Red tailed hawk captured by striped whip snake. *J Raptor Res* 22:89, 1988.

Ogborn GL, Black HL, and Pritchett CL. Ants (Formicidae) in the diet of American black bears (*Ursus americanus*) in southeastern Utah. Thesis, Brigham Young University, 1990.

Belk MC, Pritchett CL, and Smith HD. Patterns of microhabitat use of *Sorex monticolus* in summer. *Great Basin Naturalist* 50:387-389, 1990.

Pritchett CL, and Pederson JC. Utah Division of Wildlife Resources Native wildlife mammal inventory: final report central Utah, marsh/mammal study: central region. Utah Division of Wildlife Resources No. 92-13, 1993.

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CURRENT POSITION

Associate Professor, Aquatic Ecology, Department of Integrative Biology, Brigham Young University 2000 - 2011.

Full Professor, Aquatic Ecology, Department of Biology, Brigham Young University, 2011 – present.

PERSONAL INFORMATION

Home address: 80 West 1435 South, Orem, Utah, 84658
Home phone: 801-360-5277
Married: Kaly L. Burnham
Children: Amanda, Clinton, Brooke, and Kolton
U. S. Citizen

EDUCATION

Brigham Young University, B.S., Zoology, 1977
Brigham Young University, M.S., Freshwater Ecology, (Minor in Statistics), 1982
Colorado State University, Ph.D., Freshwater Ecology, 1987
Savannah River Ecology Laboratory, Post-doctoral Associate, 1987 – 1990

PAST PROFESSIONAL POSITIONS

Invited Instructor, University of South Carolina in Aiken, Spring Semester, 1988; Fall Semester, 1989

Invited Instructor, Michigan State University, Kellogg Biological Station, Summer Session, 1990

Assistant Professor, Affiliate Faculty, Duke University, School of the Environment, 1990 – 1993

Research Scientist, Freshwater Ecology, USDA Forest Service, Rocky Mountain Station, Laramie Wyoming, 1993 - 2000

Invited Instructor and Affiliate Faculty, University of Colorado, Environmental, Population, and Organismic Biology Department, 1994 - 1995

Affiliate Faculty, Colorado State University, Biology Department, 1994 - 2000

PROFESSIONAL EXPERIENCE

Chairman of the Editorial Board for the Journal of the Western North American Naturalist (2005 to present).

Associate editor for *Wetlands*, Journal of The International Society of Wetland Scientists (2004 to 2007).

Associate editor (freshwater invertebrates) for the Journal of the Western North American Naturalist (2007 to present).

Invited Instructor (1994 to 2004), Invertebrates as a Biomonitoring Tool in Wetlands. Annual short-course offered by The Aquatic Monitoring Center, Utah State University, Logan, Utah.

Invited Instructor, Stream Ecology (3 credits) and Techniques in Stream Ecology (1 credit) undergraduate majors and graduates, (1994 - 1995), Department of Environmental, Population, and Organismic Biology, University of Colorado. 78 undergraduate and graduate students.

Invited Instructor (summer 1990), undergraduate course on Invertebrate Biology, Michigan State University, The Kellogg Biological Station. 16 undergraduates.

Ecological Consultant and Expert Witness (1990 to 1993), The effects of phosphorus loading on plants and animals in the Everglades.

Invited Instructor (1988 to 1989), General Ecology (3 credits), University of South Carolina, Aiken.

Postdoctoral Research Associate (1987 - 1990), University of Georgia, Savannah River Ecology Laboratory.

Doctoral Dissertation (1983 - 1986), The Influence of Stream Regulation, Environmental Predictability, and Reduced Disturbance Frequency on the Production and Structure of a Guild of Mountain Stream Insects, Colorado State University, James V. Ward, Advisor.

Masters Thesis (1979 - 1982), The Ecology of a Freshwater Sponge, Brigham Young University, Drs. James R. Barnes and Robert N. Winget, Advisors.

I have reviewed numerous research proposals for various agencies including, The National Science Foundation, The U.S. Department of Agriculture, National Geographic, and The U.S. Environmental Protection Agency.

I review between 5 and 8 research articles for publication each year in various peer-reviewed journals including: Ecology, Oikos, Oecologia, Limnology and Oceanography, Freshwater Biology, Journal Of Freshwater Science, Biological Invasions, Wetlands, Wetlands Ecology and Management, Transactions of the American Fisheries Society, North American Journal of Fisheries Management, Applied Ecology, Regulated Rivers, Archiv für Hydrobiologie, Western North American Naturalist, Bryologist, and American Midland Naturalist.

SCHOLARSHIP

GRANTSMANSHIP My strategy is to continue to develop a diverse funding base from state, federal, and private organizations. Ecological scientists today must be adept at converting applied funding into publications that make a contribution to our basic understanding of how nature operates.

FUNDED PROJECTS (projects in bold type are since coming to BYU)

\$300,000 – Rader, R.B. and C.J. Richardson. 1992 – 1993. Mesocosm Experiments to Determine the Impact of Phosphorus Dosing on Algae, Macrophytes, and Invertebrates in the Florida Everglades. Grant awarded to the Duke University Wetland Center, by the Everglades Protection District.

\$30,000 – Rader, R.B. 1994 – 1995. Invertebrate and Algal Community Composition in Fens of the Rocky Mountains. Funding agency: The United States Forest Service, Rocky Mountain Research Station.

\$50,000 – Rader, R.B. 1996 – 1997. Influence of Mild to Severe Flow Alterations on Invertebrates in Three Mountain Streams. Funding agency: The United States Forest Service, Rocky Mountain Research Station.

\$150,000 – Rader, R.B. 1998 - 2000. Diel patterns of Drift and Brook Trout Consumption at the Stream Reach Scale. Funding agency: The United States Forest Service, Rocky Mountain Research Station.

\$50,000 – Rader, R.B. 1999 – 2000. Determining the Low-light Visual Sensitivity of Four Species of Trout. Funding agency: The United States Forest Service, Rocky Mountain Research Station.

\$1500 - Mark Merkeley and R.B. Rader. (April 2001) Bacteria as Bioindicators: Bioassessment in the Bonneville Basin of Utah. A BYU ORCA Award. (Mark was an undergraduate working in my lab.)

\$8000 - Rader, R.B. and J. Perkins-Keleher. (May 2001) Assessing the Integrity of Utah's Desert Wetlands. College of Biology and Agriculture, BYU, SANT Fund.

\$13,270 – Rader, R.B. and J. Perkins-Keleher. (August, 2001) Assessing the Integrity of Utah's Desert Wetlands. Funding agency: Utah Department of Wildlife Resources, The Endangered Species Mitigation Program.

\$2,500 – Rader, R.B. and J. Perkins-Keleher. (October, 2001) Assessing the Integrity of Utah's Desert Wetlands. Funding agency: The United States Bureau of Land Management, Salt Lake Office.

\$8000 – Rader, R.B. and J. Perkins-Keleher. (January 2002) Assessing the Integrity of Utah's Desert Wetlands. Funding agency: Utah Department of Wildlife Resources, The Endangered Species Mitigation Program.

\$20,000 - Rader, R.B. and J. Perkins-Keleher. (May 2002) Assessing the Integrity of Utah's Desert Wetlands. Funding agency: The United States Bureau of Land Management, Salt Lake City and Richfield Offices.

\$15,718 - Rader, R.B. and J. Perkins-Keleher. (May 2002) Assessing the Integrity of Utah's Desert Wetlands. Funding agency: Utah Department of Wildlife Resources, The Endangered Species Mitigation Program.

- \$4000 - Rader, R.B. and J. Perkins-Keleher. (May 2002) Assessing the Integrity of Utah's Desert Wetlands. College of Biology and Agriculture, BYU, SANT Fund.**
- \$25,000 – Rader, R.B. and M.C. Belk. (April 2003) Determining the Seasonal Habitat Requirements of Least Chub (*Iotichthys phlegethontis*) and Mosquitofish (*Gambusia affinis*) in the Bonneville Basin. Funding Agency: Utah Department of Wildlife Resources. (This was part of an \$80,000 grant used to support 3 projects.)**
- \$20,000 – Rader, R.B. and M.C. Belk. (May 2003) Determining the Seasonal Habitat Requirements of Least Chub (*Iotichthys phlegethontis*) and Mosquitofish (*Gambusia affinis*) in the Bonneville Basin. Matching Funds: BYU, Mentoring Environments Grant.**
- \$12,000 – Rader, R.B. and M.C. Belk. (May 2003) Determining the Seasonal Habitat Requirements of Least Chub (*Iotichthys phlegethontis*) and Mosquitofish (*Gambusia affinis*) in the Bonneville Basin. Matching Funds: SANT Foundation, College of Biology and Agriculture, BYU.**
- \$36,000 – Rader, R.B. and William F. Christensen. (August 2003) Predicting Biological Community Composition at Local Scales using Watershed Attributes: A Comparison of A Priori versus A Posteriori Approaches. Funding Agency: US Forest Service, Rocky Mountain Research Station, Denver, CO.**
- \$20,000 – Rader, R.B. (November 2003) Predicting Biological Community Composition at Local Scales using Watershed Attributes: A Comparison of A Priori versus A Posteriori Approaches. Matching Funds: BYU, Mentoring Environments Grant.**
- \$55,000 – Rader, R.B., and Mark C. Belk. (April 2004) Can Temperature and Trapping Diminish the Harmful Impact of *Gambusia affinis* on Least Chub (*Iotichthys phlegethontis*)? Funding agency: Utah Department of Wildlife Resources, The Endangered Species Mitigation Program.**
- \$40,000 – Rader, R.B. 2006. Can temperature Diminish the Harmful Impact of Mosquitofish on Native Least Chub? Matching Funds: BYU, Mentoring Environments Grant.**
- \$10,000 – Hatch, K., R.B. Rader, and R. Nelson. (April 2005). Preliminary Research on the Evolutionary Ecology of Fairy Shrimp and Insects in Rock Pools in Southern Utah. Awarded by the SANT foundation in the BioAg College, BYU.**
- \$1800 – Tammy Thompson and Seth Goodman. (Dec. 2005). Life History Strategies of Fairy Shrimp in Temporary and Permanent Rock Pools. Undergraduate ORCA awards, BYU. *Tammy and Seth were undergraduates working in my lab. They ran an experiment to determine the effects of hydroperiod on fairy shrimp life history flexibility.***
- \$20,000 – Hotchiss, R.H., R.B. Rader, and M.C. Belk. 2006. Potential Impacts of Flow Augmentation on Stream Restoration: Modifying Hobbie Creek for June Sucker Restoration. Funded by the Utah Water Research Center through the State Water Resources Research Institute under Section 104(B) of the Water Resources Research Act.**
- \$1800 – Cameron Kmetzsch. Species Composition of a Desert Rock Pool Metacommunity. 2006. A BYU ORCA Award. *(Cameron was an undergraduate working in my lab.)***
- \$11,000 – Rader, R.B. Predator Recognition, Social Learning, and Survival of June Sucker (*Chasmistes liorus*): A Test of the "Training Hypothesis". 2007. Awarded by the SANT foundation in the BioAg College, BYU.**

- \$8,150 – Shiozawa, D.K., R.B. Rader, and P.R. Evans. 2007. Dispersal, genetics, and endemism in east central Great Basin spring systems – can native fauna coexist with Las Vegas water development. Awarded by the Annalee Naegle Redd Assistantship fund.**
- \$20,000 – Rader, R.B. 2008. Predator recognition and the survival of endangered June suckers. BYU Mentoring Environments Grant.**
- \$134,168- Hotchkiss, R.H., and R.B. Rader. 2009. The effects of Hobbie Creek restoration on riparian ponds and the stream-lake ecotone. Central Utah Water Conservancy District (CUWCD).**
- \$18,700 – Hotchkiss, R.H., R.B. Rader, and M.C. Belk. 2009. Modification of diversion dams on Hobbie Creek for June sucker passage. Central Utah Water Conservancy District (CUWCD).**
- \$1500 – Moore, J. and R.B. Rader. 2009. Dispersal and genetic differentiation of a flatworm in streams along the Wasatch Front. A grant from The Redd Center to cover travel expenses.**
- \$75,000 – Beaumont, M., A. Besis, M. Hoge, R. Hotchkiss and R.B. Rader. June 2010. June Sucker Recovery Implementation Program: East Hobbie Creek Restoration. Central Utah Water Conservancy District (CUWCD). I am the sole biologist on this one.**
- \$1300 – Merkley, S. and R.B. Rader. 2010. The effects of introduced mosquitofish on ecosystem function in artesian springs of the Bonneville Basin. A grant from The Redd Center to cover travel expenses.**
- \$40,142- Hotchkiss, R.H. and R.B. Rader. 2012. Restoration of Hobbie Cr.: effects of augmented flows and newly formed riparian ponds on community structure and June sucker recruitment. Central Utah Water Conservancy District (CUWCD).**
- \$15,000- Randy Larsen and R.B. Rader. 2012. Analysis of Snowy Plover diet, feeding habits, and habitat selection. Fish Spring National Wildlife Refuge.**
- \$30,000 – Rader, R.B. and R.H. Hotchkiss. 2014. Restoration of Hobbie Creek: Effects of macrophytes on ecosystem metabolism in riparian ponds. Central Utah Water Conservancy District (CUWCD).**
- \$6,125 – Rader, R.B. 2014. Determining the Importance of Terrestrial Leaf Litter as a Food Resource in the Rocky Intertidal. Roger and Victoria Sant Fund, College of Life Sciences, BYU.**
- \$8,325 – Rader, R.B. 2016. Exploring invertebrates in Hanging Gardens of Zion's National Park. A grant from The BYU Redd Center for Western Studies.**

PROPOSALS IN REVIEW

- \$20,000 – Rader, R.B. 2015. Restoration of the Provo River Delta: Aquatic macrophytes as engineers of oxygen concentrations in shallow wetlands. Central Utah Water Conservancy District (CUWCD).**

PROPOSALS IN PREPARATION

- \$225,000 - Full Proposal. 2016. Collaborative research (Rader, Young, Galloway and McArthur), Terrestrial Leaf Litter as a Food Resource in Food Webs of the Rocky Intertidal Zone. NSF Biological Oceanography Cluster. We will resubmit in February, 2017.**

REJECTED PROPOSALS:

- \$202,167 - Full Proposal #7604496. 2015. Collaborative research (Rader, Young, Galloway and McArthur), Terrestrial Leaf Litter as a Food Resource in Food Webs of the Rocky Intertidal Zone. NSF Biological Oceanography Cluster. This was rejected in 2015. We earned 4 “Excellent” designations and 2 “Good”.
- 1429400: Preliminary Proposal, 2014, Collaborative (Rader, Young and McArthur), Terrestrial Leaf Litter as a Food Resource in Food Webs of the Rocky Intertidal Zone. NSF Ecosystem Cluster, DEB. We needed additional preliminary data.
- \$25,000-R.B. Rader and Randy Larsen. (May 2013). Analysis of Snowy Plover diet, feeding habits, and habitat selection. Dugway Proving Grounds, Environmental Division. (After several visits and a complete proposal, they cut me out and hired a full-time technician to do the work.)
- \$150,000 – Rader, R.B. (July 2008). Mechanisms of Community Assembly in a Desert Rock Pool Metacommunity. The Ecological Biology Cluster at the National Science Foundation, Number 0543613.
- \$248,120 - Shiozawa, D.K., R.B. Rader, K.A. Crandall, and R.P. Evans. (March 2008). Dispersal, genetics, and endemism in the east central Great Basin - will water development by Las Vegas eliminate unique aquatic invertebrates from spring systems? A proposal to the Utah Endangered Species Mitigation Fund.
- \$196,367 - Rader, R.B., D.K. Shiozawa, C. Addley, and S. Nelson. (March 2008). A Hydrodynamic Model of Habitat Fluctuations as a Function of Flow in Artesian Springs of Snake Valley. A proposal to the Utah Endangered Species Mitigation Fund.
- \$36,000 – Rader, R.B., Todd Crowl, and M.C. Belk. (November 2007). Predator Recognition and June Sucker Survival. Submitted to Utah Department of Wildlife Resources, the June Sucker Recovery Team
- \$56,194 – Rader, R.B. and M.C. Belk. (April 2007). Metapopulation Dynamics of Least Chub in Response to Water Level Fluctuations in the Springs of Snake Valley: A Scientific Response to The Las Vegas Water Grab. Submitted to Utah Department of Wildlife Resources, the Least Chub Recovery Team.
- \$60,000 - Shiozawa, D.K, R.B. Rader, and P. Evans. (March 2007). Diversity and Dispersal of Aquatic Invertebrates in Desert Springs of Eastern Nevada: Towards Understanding the Effects of Water Withdrawal. Submitted to the Nevada State Water Regulatory Board.
- \$48,500 – Rader, R.B., D.K. Shiozawa, and P. R. Evans. (January 2006). Determining the genetic differentiation, real-time movement, and isolation of Colorado River Cutthroat Trout in an Alpine Stream-Lake Network. The US. Fish and Wildlife Foundation, “Bring Back the Native Program”.
- Edmond Priddis (Rader advisor; Oct. 2005). Effects of Temperature on Interactions Between Native (*Iotichthys phlegethontis*) and Non-native fish (*Gambusia affinis*). NSF Graduate Fellowship.
- \$304,493 – Rader, R.B. and C.R. Nelson. (July 2005). Experimental Field Tests of Metacommunity Concepts: The Effects of Environmental Heterogeneity and Mass Effects on Species Composition and Diversity in Desert Rock Pools. Submitted to the Ecological Biology Cluster at the National Science Foundation, Number 0543613.
- \$16,000 – Rader, R.B. and Mark C. Belk. (April 2005). The Effects of Temperature on Biotic Interactions Between the Invasive Species, *Gambusia affinis* and Native Least Chub (*Iotichthys phlegethontis*).

- Funding agency: Utah Department of Wildlife Resources, The Endangered Species Mitigation Program. (A modified version was funded in 2006.)
- \$45,000 - Rader, R.B., D.K. Shiozawa, and P. Evans. (April 2005). Determining the Movements, Genetic Differentiation, and Isolation of Colorado River Cutthroat Trout and Brook Char in an Alpine Stream-Lake Network. The Fish Habitat Relations Program of the US Forest Service.
- \$1500 - Ed Priddis (an undergraduate working in my lab). (April 2004). Spatial and Temporal Variation in Aquatic versus Terrestrial Drift: A Multiscale Analysis. BYU ORCA Awards.
- Adrian Bell (Peck & Rader co-advisors; Oct. 2003). Modeling Predation in Stream Ecosystems. NSF Graduate Fellowship.
- Matthew Pyne (Rader advisor; Oct. 2003). Classifying Stream Ecosystems at the Watershed Scale. EPA Graduate Fellowship.
- Matthew Pyne (Rader advisor; Oct. 2003). Does Spatial Heterogeneity Reduce the Constraining Influence of Large-Scale Process?: A Test of Hierarchy Theory. NSF Graduate Fellowship
- \$83,000 – Rader, R.B. and M.C. Belk. (September, 2003) Ecology of the Mohave tui chub (*Siphateles bicolor mohavensis*). Funding Agency: US National Park Service.
- \$158,375 – Rader, R.B. (BYU), B.A. Roundy (BYU), R.A. Stottlemeyer (NPS), E.A. Wohl (CSU), C. Richardson (Duke). (July 2003). Assessing Ecological Conditions at the Watershed Scale: A Review of Methods and Procedures. Funding Agency: US National Park Service.
- \$85,000 – Rader, R.B. (July 2003). Assessing Watershed Conditions in The GMUG National Forest: A Hierarchical, A Posteriori Framework. Funding Agency: US Forest Service, Rocky Mountain Research Station, Denver Co.
- \$286,599 – Hatch, K.A., R.B. Rader, and D. E. Eggett. (July 2003). The Threat of Winterkill to Aquatic Frog Populations. Funding Agency: Ecological and Evolutionary Physiology Program of the US National Science Foundation.
- \$15,000 – Rader, R.B., Mark C. Belk, and Richard A. Heckmann. (March 2003). Can the Invasive Species, *Melanoides Tuberculata*, Harmfully Impact Endangered Species in Spring Ecosystems of the Great Basin? Funding agency: Utah Department of Wildlife Resources, The Endangered Species Mitigation Program.
- \$285,220 – Rader, R.B., D.K. Shiozawa, W. Christensen, and J.A. Lowry. (Jan. 2003). Predicting Stream Community Composition at the Watershed Scale in Mountain Regions: An A Posteriori Framework. Funding agency: US Environmental Protection Agency, STAR Program.
- Jane Perkins-Keleher (Rader advisor; Nov. 2002) . Assessing the Ecological Integrity of Desert Wetlands in the Bonneville Basin. EPA Graduate Fellowship.
- Mike Mills (Rader advisor; Oct. 2002). Potential Harmful Impact of Brown Trout (*Salmo trutta*) on Bonneville Cutthroat Trout (*Onchorhynchus clarkii utah*). Received an honorable mention. NSF Graduate Fellowship
- \$974,993 – Rader, R.B., D.K. Shiozawa, and C.P. Hawkins. (Jan. 2001). Hierarchical Classification of Montane Wetlands in the Rocky Mountains. Funding agency: US Environmental Protection Agency, STAR Program.

PUBLICATIONS

PEER-REVIEWED PUBLICATIONS (articles in bold type are since coming to BYU)

Rader, R.B. 1982. The Ecology of *Ephydatia fluviatilis* (Spongillidae:Porifera) in Utah Lake. M.S. Thesis, Brigham Young University, Zoology Department.

Rader, R.B. 1984. Factors effecting the distribution of a freshwater sponge. *Freshwater Invertebrate Biology* 3(2): 86-97.

Rader, R.B. 1985. Seasonal growth rates and population dynamics of a freshwater sponge. *Hydrobiologia* 123: 171-176.

Rader, R.B. and J.V. Ward. 1986. Mayfly production in a Colorado mountain stream: an assessment of methods for synchronous and non-synchronous species. *Hydrobiologia* 148: 145-150.

Rader, R.B. and J.V. Ward. 1986. Resource utilization, overlap, and temporal dynamics in a guild of mountain stream insects. *Freshwater Biology* 18(3): 521-528.

Rader, R.B. 1987. Influence of stream regulation on macroinvertebrate assemblages of the Upper Colorado River. Ph. D. Dissertation, Colorado State University, Biology Department.

Rader, R.B. and J.V. Ward. 1988. Influence of regulation on environmental conditions and the macroinvertebrate community in the upper Colorado River. *Regulated Rivers* 2: 597-618.

Rader, R.B. and J.V. Ward. 1989. Influence of environmental predictability/disturbance characteristics on the structure of a guild of mountain stream insects. *Oikos* 53: 1-10.

Rader, R.B. and J.V. Ward. 1989. Influence of impoundments on mayfly diets, life histories, and production. *Journal of the North American Benthological Society* 8(1): 64-73.

Rader, R.B. and J.V. Ward. 1990. Diel migration and microhabitat distribution of a benthic stream assemblage. *Canadian Journal of Fisheries and Aquatic Sciences* 47: 711-718.

Rader, R.B. and J.V. Ward. 1990. Mayfly growth and population density in constant and variable temperature regimes. *The Great Basin Naturalist* 50: 97-106.

Rader, R.B. and C.J. Richardson. 1992. The effects of nutrient enrichment on macroinvertebrates and algae in the Everglades: A review. *Wetlands* 12: 34-41.

Rader, R.B., J V. McArthur, and J.A. Aho. 1994. Relative importance of mechanisms determining decomposition in a southeastern, blackwater stream. *American Midland Naturalist* 131(2): 19-31.

Rader, R.B. 1994. Macroinvertebrates of the northern Everglades: Species composition and trophic structure. *Florida Scientist* 57: 22-33.

Rader, R.B., J V. McArthur, and J.A. Aho. 1994. Relative importance of mechanisms determining decomposition in a southeastern, blackwater stream. *American Midland Naturalist* 131(2): 19-31.

Rader, R.B. and C.J. Richardson. 1994. Response of macroinvertebrates and small fish to nutrient enrichment in the northern Everglades. *Wetlands* 14 (2): 134-146.

- Rader, R.B. and J.V. McArthur. 1995. The effects of refugia on the drift and habitat selection of predaceous stoneflies in a sandy-bottomed stream. *Oecologia* 103: 1-9.
- Mills, G.L., J V. McArthur, C. Wolfe, R.B. Rader and J. A. Aho. 1996. Fatty-acid and hydrocarbon composition of decomposing leaf litter in a snag habitat in a southeastern blackwater stream. *Archiv für Hydrobiologie* 16:121-129.
- Wellnitz, T.A., R.B. Rader, and J.V. Ward. 1996. Importance of light and nutrients in structuring an algal community in a Rocky Mountain stream. *Journal of Freshwater Ecology* 11: 399-413.
- Wellnitz, T.A., R.B. Rader, and J.V. Ward. 1996. Light and a grazing mayfly shape periphyton in a Rocky Mountain stream. *Journal of North American Benthological Society* 15: 496-507.
- Young, M.K., R.B. Rader, T.A. Belish. 1997. Influence of macroinvertebrate drift and light on the activity and movement of Colorado River cutthroat trout *Oncorhynchus clarki pleuriticus*. *Transactions of the American Fisheries Society* 126: 428-437.
- Rader, R.B. 1997. A functional classification of the drift: Traits that influence invertebrate availability to salmonids. *Canadian Journal of Fisheries and Aquatic Sciences* 54: 1211-1234.
- Rader, R.B. and T.A. Belish. 1997. Short-term effects of ambient and enhanced UV-B on moss (*Fontinalis neomexicana*) in a mountain stream. *Journal of Freshwater Ecology* 12: 395-403.
- Rader, R.B. and T.A. Belish. 1997. Effects of ambient and enhanced UV-B radiation on periphyton in a mountain stream. *Journal of Freshwater Ecology* 12: 615-628.
- Voelz, N.J., J V. McArthur, and Russell B. Rader. 1998. Upstream mobility of the asiatic clam, *Corbicula fluminea*: Identifying potential dispersal agents. *Journal of Freshwater Ecology* 13: 39-45.
- Rader, R.B. and T.A. Belish. 1999. Influence of mild to severe flow alteration on invertebrates in three mountain streams. *Regulated Rivers: Research and Management* 15:353-363.
- Mills, G.L., J. V McArthur, C. Wolfe, J. M. Aho, and R. B. Rader. 2001. Changes in fatty acid and hydrocarbon composition of leaves during decomposition in a southeastern blackwater stream. *Archive fur Hydrobiologie* 152: 315-328.
- Wellnitz, T.A. and R.B. Rader. 2003. Mechanisms influencing community composition and succession in mountain stream periphyton: interactions between scouring history, grazing, and irradiance. *Journal of North American Benthological Society* 22:528-541. Impact Factor = 2.3
- Rader, R.B., M.C. Belk, and M.J. Keleher. 2003. The Introduction of an Invasive Snail (*Melanoides tuberculata*) to Spring Ecosystems of the Bonneville Basin, Utah. *Journal of Freshwater Ecology* 18:647-657.
- Mills, M.D., M.C. Belk, R.B. Rader, and J.E. Brown. 2004. Age and growth of least chub, *Notichthys phlegenthonis*, in wild populations. *Western North American Naturalist* 64 (3):409-412.
- Merkley, M., R.B. Rader, J.V. McArthur, and D. Eggett. 2004. Bacteria as Bioindicators: Bioassessment in the Bonneville Basin of Utah. *Wetlands* 24 (3): 600-607. Impact Factor = 1.8 (Mark Merkley was an undergraduate working in my lab.)
- Mills, M.D., R.B. Rader, and M.C. Belk. 2004. Complex Interactions between Native and Invasive Fish: The Simultaneous Effects of Multiple Negative Interactions. *Oecologia* 141:713-721.

- Impact Factor = 3.008.** (Mike Mills was my second graduate student at BYU. This work was written-up in the Provo Daily Herald, Deseret Morning News, Salt Lake Tribune, Y News, and BYU Magazine. Mike is now a biologist with the Central Utah Water District.)
- Rader, R.B., M.C. Belk, D.K. Shiozawa, and K.A. Crandall. 2005. Tests for Ecological Exchangeability. *Journal of Animal Conservation* 8: 239-247. Impact Factor = 2.6.**
- Rader, R.B., N.J. Voelz, and J.V. Ward. 2006. Post-Flood Recovery of a Macroinvertebrate Community in a Regulated River: Resilience of an Anthropogenically Altered Ecosystem. *Restoration Ecology* 16: 24-35. Impact Factor = 1.7**
- Pyne, M.I., R.B. Rader, and W.F. Christensen. 2007. Predicting local biological characteristics in streams: A comparison of landscape classifications. *Freshwater Biology* 52: 1302-1321. Impact Factor = 2.5 (Matt Pyne was my fourth graduate student at BYU. Matt has graduated and is pursuing a Ph D at Colorado State University.)**
- Ayala, J., R.B. Rader, M.C. Belk, and B. Schaalje. 2007. Ground-truthing the impact of invasive species: spatio-temporal overlap between native least chub and introduced western mosquitofish. *Biological Invasions* 9: 857-869. Impact Factor = 2.5. (Jill Ayala was my third graduate student at BYU. She has graduated and teaches at UVU.)**
- Rader, R.B., T. Belish, M. K. Young, and J. A. Rothlisberger. 2007. The Dim-Light Sensitivity of Four Species of Trout: A Comparative Study. *Western North American Naturalist* 67(4): 524-537. (John was an undergraduate working in my lab. He subsequently received his MS in freshwater ecology at USU, and a PhD with David Lodge at the University of Notre Dame. He is currently working as a research scientists with the US Forest Service.)**
- Keleher, M.J. and R.B. Rader. 2008. Dispersal limitations and history explain community composition of metaphyton in desert springs of the Bonneville Basin, Utah: A multiscale analysis. *Limnology & Oceanography* 53(4): 1604-1613. Impact Factor = 6.7...this is the highest rated journal in aquatic ecology. Jane Keleher was my first graduate student at BYU. She completed her PhD in August 2007 and is the department chair at Salt Lake Community College.**
- Keleher, M.J. and R.B. Rader. 2008. Bioassessment of Artesian Springs of Bonneville Basin, Utah. *Wetlands* 28: 1048-1059. Impact Factor = 1.8**
- Bell, Adrian V., Russell B. Rader, Steven L. Peck, & Andrew Sih. 2009. The positive effects of negative interactions: can avoidance of competitors or predators increase resource sampling by prey?" *Theoretical Population Biology* 76: 52-58. Impact Factor = 1.95**
- Priddis, E., R.B. Rader, M.C. Belk, B. Schaalje, and S. Merkley. 2009. Can Separation along the Temperature Niche Axis Promote Coexistence Between Native and Invasive Species? *Diversity and Distributions* 1-10. Impact Factor = 2.97 (Ed Priddis was my sixth graduate student at BYU.)**
- Hays, M.D., S.K. Monk, T.P. Hawkes, J.R. Webb, R.H. Hotchkiss, M. Belk, and R.B. Rader. 2009. Fish passage can be improved by introducing hydraulic refuge. Can the effects be quantified? *World Environmental and Water Resources Congress* 1:3092-3106.**
- Rader, R.B., Belk, M., Hotchkiss, R. and J. Brown. 2010. The Stream-Lake Ecotone: Potential Juvenile Habitat for Endangered June Suckers (*Chasmistes liorus*). *Western North American Naturalist* 70(4): 553-561.**

Belk, M.C., R.B. Rader, and M.D. Mills. 2011. Lake suckers in the western USA: History, Ecology, and bibliography of an endangered genus. *Western North American Naturalist* 71(4): 437-441.

Kreitzer, J.D., E.J. Billman, M.C. Belk, and R.B. Rader. 2011. Growth of young June sucker (*Chasmistes liorus*) is associated with zooplankton density in Utah Lake. *Western North American Naturalist* 71(4): 499-506.

Rader, R.B., M.J. Keleher, E.J. Billman, and R. Larsen. 2012. History rather than contemporary processes determine variation in macroinvertebrate diversity in artesian springs: the expansion hypothesis. *Freshwater Biology* 57: 2475-2486. Impact Factor = 3.3

Merkley, S. and R.B. Rader. 2015. Introduced western mosquitofish reduce the emergence of aquatic insects in desert springs of the Bonneville Basin, U.S.A. *Freshwater Science* 34: 564-573.

PEER-REVIEWED PUBLICATIONS IN REVIEW

Rackliffe, D.R., G.B. Schaalje, G.T. Carling, and R.B. Rader. Effects of Aquatic Macrophytes on Oxygen Dynamics and Ecosystem Metabolism in a Shallow Wetland. *Freshwater Science*, in review. Impact Factor = 1.99. (Riley Rackliffe just graduated with his MS from my lab in December, 2014. Schaalje is a statistician in Statistics Department at BYU. Carling is a water chemist in Geology Department at BYU.)

Rader, R.B., P.J. Unmack, and J.N. Moore. Population Genetics and Dispersal of the Flatworm, *Polycelis coronata*: a test of the Habitat Stability Hypothesis. *Freshwater Ecology*: in review. (Peter Unmack was a post-doc working in our department.)

Rader, R.B., P.J. Unmack, and X. Jiang. Connectivity of the caddisfly, *Neothremma alicia*: a test of the Isolated Tributary Hypothesis. *Freshwater Biology*: in review. (Xiaoben Jiang was my graduate student from Shanghai, China; Xiaoben has a job in a gene sequencing lab in Shanghai).

PEER-REVIEWED PUBLICATIONS IN PREPARATION

(Data has been analyzed and presented at professional meetings)

Fairbanks, D., C.M. Young, J.V. McArthur, C. Quigley, and B. Pribyl. Decomposition Rates of Terrestrial Leaf Litter in the Rocky Intertidal Zone. Doug Fairbanks is a graduate student. Calvin Quigley and B. Pribyl were undergraduates in my Marine Biology course, 2014.

BOOKS PUBLISHED

Batzer, D.B., R.B. Rader, and S. Wissinger (eds.). 1999. Invertebrates in Freshwater Wetlands of North America: Ecology and Management. John Wiley & Sons Publishers, 115 Fifth Avenue, New York, NY, 10003, 1100 pages. (This book recently passed Wiggins et al. 1980 as the most frequently cited reference on wetland invertebrates in the world.)

Rader, R.B., D.B. Batzer, and S.A. Wissinger (eds.). 2001. Bioassessment and Management of Freshwater Wetlands. John Wiley and Sons Publishers, 115 Fifth Avenue, New York, NY, 10003, 469 pages.

BOOK CHAPTERS

Rader, R.B. and C.J. Richardson. 1993. The effects of agricultural run-off on small fish and macroinvertebrates in the Everglades. Pages 462-466, in Mary C. Landin (ed.), Wetlands:

- Proceedings of the 13th Annual Conference, Society of Wetland Scientists, New Orleans, Louisiana, June 1992.
- Rader, R.B. 1999. The Florida Everglades: Natural Variability, Invertebrate Diversity and Foodweb Stability. Pages 25 - 54, *in* D.B. Batzer, R.B. Rader and S. Wissinger (eds.), *Invertebrates in Freshwater Wetlands of North America: Ecology and Management*. John Wiley & Sons Publishers, 115 Fifth Avenue, New York, NY, 10003.
- Rader, R.B. 2001. Bioassessment and Management of Freshwater Wetlands (Chapter 1, pages 1 - 10), *in* R.B. Rader, D.B. Batzer and S.A. Wissinger (eds.), *Bioassessment and Management of North American Freshwater Wetlands*. John Wiley and Sons Publishers, 115 Fifth Avenue, New York, NY, 10003.**
- Rader, R.B. and D.K. Shiozawa. 2001. General Principles of Establishing a Bioassessment Program (Chapter 2, pages 13 - 44), *in* R.B. Rader, D.B. Batzer and S.A. Wissinger (eds.), *Bioassessment and Management of North American Freshwater Wetlands*. John Wiley and Sons Publishers, 115 Fifth Avenue, New York, NY, 10003.**
- Batzer, D.P., A.S. Shurtleff, and R.B. Rader. 2001. Sampling Invertebrates in Wetlands (Chapter 15, pages 339 - 354), *in* R.B. Rader, D.B. Batzer and S.A. Wissinger (eds.), *Bioassessment and Management of North American Freshwater Wetlands*. John Wiley and Sons Publishers, 115 Fifth Avenue, New York, NY, 10003.**
- Shiozawa, D.K. and R.B. Rader. 2005 Great Basin Rivers (pages 665-685), *in* A. Benke and B.A. Cushing (eds.), *Rivers of North America: Ecology and Management*, Elsevier Academic Press, New York, NY.**
- Shiozawa, D. K. and R. B. Rader. 2009. Great Basin Rivers. Chapter 14, pp 284-299. *in* A. C. Benke and C. Cushing (eds). *Field Guide to Rivers of North America*. Elsevier, Academic Press. 472 pp.**

NON-REVIEWED REPORTS and PUBLICATIONS

- Perkins-Keleher, J. and R.B. Rader. 2001. Assessing the ecological integrity of Utah's desert wetlands. *Wildlife Review: Utah Division of Wildlife Resources*, October Issue, pages 11 – 13.
- Perkins-Keleher, J. and R.B. Rader. 2002. Developing bioassessment tools to judge the ecological integrity of desert wetlands in the Bonneville Basin, Utah. Article published in the annual Newsletter of the Western Division of the Society of Wetland Scientists.
- Perkins-Keleher, J., B. Shettell, and R.B. Rader. 2003. Assessing the ecological integrity of Utah's desert wetlands. Progress Report to U.S. Bureau of Land Management, 21 pages.
- Perkins-Keleher, J. and R.B. Rader. 2003. Utah's desert wetlands. Species on the edge. Utah Division of Wildlife Resources, Annual Report, October 2003, pages 29 – 30.
- Keleher, M.J. and R.B. Rader. 2004. Assessing the Ecological Integrity of Utah's Desert Wetlands: Final Report. U.S. Bureau of Land Management, 38 pages.
- Rackliffe, R. and R.B. Rader. 2012. Effects of flooding on physical and biological characteristics of created riparian ponds in Hobbie Creek. Annual Report to the Utah Water Conservancy District.

PRESENTATIONS, A SELECTED LIST

- R.B. Rader. Guild Structure and Environmental Predictability: Evidence for the “Ghost of Competition Past”. Invited Seminar, 1989, University of Tennessee.
- R.B. Rader. Detritus and the Trophic Ecology of Stream Insects: Do they Really Eat Dead Leaves? Invited Seminar, 1990, Clemson University.
- R.B. Rader. Space Wars: The Ecology of Stonefly Aggression. Invited Seminar, University of Georgia, 1991, The Institute of Ecology.
- R.B. Rader. The effects of phosphorus enrichment in the Everglades, Invited Seminar, 1993, Auburn University.
- R.B. Rader. Adaptation and Environmental Variation: Keys to Understanding the Effects of Anthropic Disturbances, Invited Seminar, 1996, University of Wyoming.
- R.B. Rader, 2001. The Natural Flow Regime: The Impact of Scouring, Light and Grazing on Algae in a Mountain Stream, Invited Seminar, BYU Botany and Range Science Department.
- R.B. Rader, 2001. Patterns of Trout Growth, Consumption, and Drift at the Stream Reach Scale, Invited Seminar, University of Lyon, France.
- R.B. Rader, 2001. Trout Density and Growth: Patterns and Processes at Three Spatial Scales, Invited Seminar, Utah State University.
- R.B. Rader, 2001. Spatial and Temporal Patterns of Drift and Trout Consumption in Three Streams of the Rocky Mountains, contributed paper, American Fisheries Society, Bonneville Chapter, St. George, Utah.
- M.Jane Perkins and Rader, 2001. Springs of the Bonneville Basin: Developing a Bioassessment Protocol, contributed paper, Annual Meeting of the American Fisheries Society, Bonneville Chapter, St. George, Utah.
- M.Jane Perkins and Rader, 2001. Assessing the Ecological Integrity of Wetlands in the Bonneville Basin of Utah, contributed paper, Meetings of the Society of Western North American Naturalists.
- M.Jane Perkins and Rader, 2001. Assessing the Ecological Integrity of Wetlands in the Bonneville Basin of Utah, contributed paper, Annual Meeting of Desert Fishes Council, Alpine, Texas.
- John A. Rothlisberger and Rader, 2001. The Low-light Visual Acuity of Four Species of Trout, contributed paper, Meetings of the Society of Western North American Naturalists, BYU. This was not developed from a graduate student thesis. (John was an undergraduate working in my lab. He subsequently received a Masters degree in freshwater ecology at USU, and received a Ph.D. with David M. Lodge at the University of Notre Dame.)
- Ben Shettell, M.J. Perkins, and Rader. April, 2002. Using emergent macrophytes to determine the ecological integrity of desert wetlands in the Bonneville Basin. West Coast Biological Sciences Undergraduate Research Conference, Los Angeles, CA. (Ben was an undergraduate working in my lab.)
- M.Jane Perkins and Rader. June, 2002. Bioassessment of Isolated Desert Wetlands in the Bonneville Basin of Utah. Annual Meeting of the Society of Wetland Scientists, Lake Placid, NY.

- R.B. Rader and H.A. Rhodes. May, 2002. The Relative Importance of Terrestrial Versus Aquatic Invertebrates in Brook Trout Diets: Spatial and Temporal Patterns. Annual Meeting of the North American Benthological Society, Pittsburg, PA.
- Mike D. Mills, M.C. Belk, and R.B. Rader. November, 2002. Can the invasive species, *Gambusia affinis*, harmfully impact native least chub (*Iotichthys phlegethontis*)?: A field test. Annual Meeting of the Desert Fishes Council, San Luis Potosi, Mexico.
- R.B. Rader, M. Mills, and M.C. Belk. November, 2002. Does the invasive species, *Gambusia affinis*, prey on native least chub (*Iotichthys phlegethontis*)?: A lab experiment. Annual Meeting of the Desert Fishes Council, San Luis Potosi, Mexico.
- R.B. Rader. (May 2003). Invertebrate Community Structure in Rocky Mountain Fens: Local versus Regional Processes. American Society of Wetland Scientists annual meeting in New Orleans.
- R.B. Rader. (February 2003). Using Macroinvertebrates for Bioassessment in Rocky Mountain Fens. Entomological Society of American Annual Meetings in San Diego.
- Mike D. Mills, R.B. Rader, and M.C. Belk. Nov. 2003. Exploring Mechanisms of Interaction Between Native Least Chub and Introduced Western Mosquitofish. Annual Meeting of the Desert Fishes Council, Death Valley, CA.
- Jane Keleher and R.B. Rader. Nov. 2003. Determining the ecological integrity of isolated desert wetlands in the Bonneville Basin. Annual Meeting of the Desert Fishes Council, Death Valley, CA.
- Jill Ayala, R.B. Rader, and M.C. Belk. Nov. 2003. Determining the Seasonal Habitat Requirements of Least Chub (*Iotichthys phlegethontis*) and Mosquitofish (*Gambusia affinis*) in the Bonneville Basin: Preliminary Data. Annual Meeting of the Desert Fishes Council, Death Valley, CA.
- Mills, M.D., Rader, R.B., and M.C. Belk. Aug. 2004. Complex interactions between native and invasive fish: the simultaneous effects of multiple negative interactions. Annual Meeting of the Western Division of the American Fisheries Society, 2004. (Mike was a graduate student working in my lab. He won the Best Poster award.)
- Priddis, E. and R.B. Rader. Aug. 2004. Is there a relationship between current velocity and invertebrate drift?: A multiscale analysis. Annual Meetings of the Ecological Society of America, August, Portland, Oregon.
- Rader, R.B., M.D. Mills, and M.C. Belk. Sept. 2004. Complex interactions between native and invasive fish: the simultaneous effects of multiple negative interactions. International Conference on Aquatic Invasive Species, Ireland.
- Jill Ayala, R.B. Rader, M.C. Belk, and B. Schaalje. Feb. 2005. Seasonal and diel habitat use of native least chub (*Iotichthys phlegethontis*) in the presence of invasive western mosquitofish (*Gambusia affinis*). Invasive Species Session of the Annual Meeting of the Society of Limnology and Oceanography, Salt Lake City, UT.
- Rader, R.B. and E. Priddis. May 2005. A Multiscale Analysis of the Relationship Between Current Velocity and Drift: Is Drift a Predictable Food Resource for Drift-feeding Fish? Annual Meeting of the North American Benthological Society, New Orleans, LA.

- Matthew Pyne, R.B. Rader, and W. Christensen. Aug. 2005. Testing Differences in the Biological Community of Streams using Watershed Classification. Annual Meeting of the Ecological Society of America, Montreal, CA.
- Bell, A.V., R.B. Rader, S.L. Peck, and A. Sih. Predators and Prey: The Influence of Resource Distribution, Behavior, and Density on Patterns of Spatial Association. Aug. 2005. Annual Meeting of the Ecological Society of America, Montreal, CA.
- Rader, R.B. and V. de Crespín de Billy. Aug. 2005. Factors Affecting the Growth and Density of Brook Charr (*Salvelinus fontinalis*) in Three Mountain Streams: A Multiscale Analysis. Annual Meeting of the Ecological Society of America, Montreal, CA.
- Rader, R.B. 2006. A multiscale analysis of invertebrate drift, habitat availability, and the growth and density of brook trout (*Salvelinus fontinalis*). Annual Meeting of the North American Benthological Society, Anchorage Alaska.
- Priddis, E. and R.B. Rader. 2006. The effects of temperature on the interaction between western mosquitofish and native least chub: Do mosquitofish have an Achilles Heal? Annual Meeting of the Desert Fishes Council, Death Valley, CA.
- Kmetzsch, C.S. and R.B. Rader. 2006. The effects of Scouring on a Desert Rock Pool Metacommunity. Annual Meeting of the Desert Fishes Council, Death Valley, CA. (Cameron is an undergraduate working in my lab. He won the Best Student Presentation award.)
- Thompson, T.B. and R.B. Rader. 2006. Effects of Varying Lengths of Inundation on Fairy Shrimp Life History Traits. Annual Meeting of the Desert Fishes Council, Death Valley, CA. (Tammy was an undergraduate working in my lab.)
- Keleher, J. and R.B. Rader. 2006. The Effects of Habitat Heterogeneity and Dispersal Constraints on Diversity in Desert Springs of the Bonneville Basin. Annual Meeting of the Desert Fishes Council, Death Valley, CA.
- Rader, R.B. 2007. How to control the harmful effects of invasive fish: A case study from the American west. First International meeting of the Society of Conservation Biology, In Port Elizabeth, South Africa.
- Romrell D. and R.B. Rader. 2007. The effects of rock pool duration on the fitness of fairy shrimp (*Brachinecta packardii*). Annual Meeting of the Society of Wetland Scientists in Sacramento California. (Diane was an undergraduate working in my lab. She won an Honorable Mention for Best Student Presentation.)
- Stutz, H.L., D.K. Shiozawa, K.J. Tanner, R.P. Evans, and R.B. Rader. 2008. Estimating dispersal of spring invertebrates through genetic diversity in threatened habitats of the great basin. Annual Meeting of the North American Benthological Society in Salt Lake City.
- Rader, R.B. 2008. Streams and the Metacommunity Concept: New Jargon or New Insight? Annual Meeting of the North American Benthological Society in Salt Lake City.

- Kmetzsch, C.S. and R.B. Rader. 2008. Scouring flows and habitat permanency determine species composition in a desert rockpool metacommunity. Annual Meeting of the North American Benthological Society in Salt Lake City. (Cameron was an undergraduate working in my lab.)
- Rader, R.B., M. J. Keleher, and E. Billman. 2009. Partitioning diversity across geographic scales in artesian springs of the Bonneville Basin: patterns and potential processes. Annual Meeting of the North American Benthological Society in Grand Rapids Michigan.
- Merkley, S. and R.B. Rader. 2009. The effects of invasive mosquitofish on ecosystem function in artesian springs of the Bonneville Basin. Annual meeting of the Desert Fishes Council in Death Valley, California.
- Moore, J.N. and R.B. Rader. 2010. Population differentiation and dispersal dynamics of a stream flatworm in the Wasatch Mountains of Utah. Annual Meeting of North American Benthological Society, Sante Fe, New Mexico.
- Merkley, S. and R.B. Rader. 2010. The relationship between fish species richness and ecosystem function in springs of the Bonneville Basin. Annual Meeting of North American Benthological Society, Sante Fe, New Mexico.
- Rader, R.B., M.C. Belk, D.K. Shiozawa, and K.A. Crandall. 2012. Empirical tests for exchangeability. Invited presentation in a special session of the Annual Meeting of the Desert Fishes Council, Death Valley, CA
- Fairbanks, D., R.B. Rader, and D.R. Rackliffe. 2012. Resiliency of newly created riparian ponds to an extreme flood event. Annual Meeting of the Desert Fishes Council, Death Valley, CA. **Doug is an undergraduate student in the Biology Department at BYU.**
- Rackliffe, D.R., R.B. Rader, and D. Fairbanks. 2012. Daily oxygen levels in shallow wetlands. Annual Meeting of the Desert Fishes Council, Death Valley, CA **Riley joined my lab as a graduate student in August 2012.**
- Rackliffe, D.R. and R.B. Rader. 2014. Estimates of Ecosystem Metabolism in a Shallow Wetland. Joint Meeting of Aquatic Sciences Portland, Oregon. **Riley graduated this December.**
- Rader, R.B. and W. Christenson. 2014. Factors Effecting Metacommunity Dynamics in Desert Springs. Joint Meeting of Aquatic Sciences in Portland, Oregon. **This was an invited presentation in a special session. Aquatic scientists from all over the globe about 3500 in total. William is in the stats department at BYU. He helped with the analyses.**
- Rader, R.B., G. Handley, B. Bickmore. 2014. A series of three presentations on the science of climate change. Invited by the Provo Energy Commission monthly meetings. George and I started the exchange (October and November) and Barry came on to help in December.

PROFESSIONAL SOCIETY AFFILIATIONS

Ecological Society of America
 INTECOL, International Association for Ecology
 Society of Conservation Biology
 Society for Freshwater Science
 Society of Wetland Scientists
 American Fisheries Society
 American Society of Limnology and Oceanography
 Desert Fishes Council

TEACHING

Prior to BYU:

General Ecology, (3 credits), University of South Carolina, Aiken. 28 undergraduates. (1988 – 1989)

Stream Ecology, (3 credits) and Techniques in Stream Ecology (1 credit lab) undergraduate majors and graduates, Department of Environmental, Population, and Organismic Biology, University of Colorado. 78 undergraduates. (1994 - 1995)

Invertebrate Zoology, (3 credits), Kellogg Biological Station, Michigan State University, 16 undergraduates. (Summer 1990)

BYU (* indicates my current teaching assignment)

Introductory Biology (Zoo 100, undergraduate non-majors), Zoology Department, Brigham Young University.

The Science of Biology (Zoo 102, undergraduate majors and non-majors), Zoology Department, Brigham Young University.

The Diversity of Life (InBio 341, undergraduate majors and non-majors), Department of Integrative Biology, Brigham Young University.

Aquatic Ecology Laboratory (Bio 558, graduate students and undergraduate majors), Department of Integrative Biology, Brigham Young University.

Research Orientation (BIO 503, first-year graduate students in our college.)

* **Diversity of Life (BIO 220A, 4 credits**, undergraduate majors and non-majors), General Education Course, College of Life Sciences, Brigham Young University. **Taught during the Fall semester on odd years.**

* **General Ecology (BIO 350, 3 credits**, undergraduate majors), Core course in Department of Biology, Brigham Young University. **Taught every Winter semester and during the Spring semester on even years.**

* **Marine Biology (BIO 452, 4 credits**, undergraduate majors and non-majors), elective in Department of Biology, BYU. **Taught during the spring semester on even years.**

* **Stream and Wetland Ecology (BIO 557, 3 credits**, graduate students and undergraduate majors), Department of Biology, Brigham Young University. **Taught during the Fall semester on odd years.**

* **Community Ecology (BIO 653, 2 credits**, graduate students), Department of Biology, Brigham Young University. **Taught during the Fall semester on even years.**

***BIO 559R Special Topics in Ecology** (Taught on demand)

***BIO 494R Mentored Research, Undergraduates** (Taught every semester)

***BIO 699R Mentored Research, MS students** (Taught when required)

***BIO 799R Mentored Research, PhD students** (Taught when required)

GRADUATE STUDENTS MENTORED (Where are they now?)

Todd Wellnitz (Ph. D. Colorado State University) I sponsored Todd's research when I was an employee with the US Forest Service. My mentoring responsibilities increased when Todd's advisor (James V. Ward) took a job in Switzerland part-way through his Ph. D. We have published 3 articles and are working on a fourth. Todd is a member of the faculty at the University of Wisconsin – Eau Claire.

Jane Keleher (Ph. D. BYU) Jane was my first PhD student at BYU. She has successfully defended her dissertation and graduated in August, 2007. Jane accepted a fulltime tenure-track teaching position at Salt Lake Community College (2004). We have published several articles together. She is currently the chair of her department.

Mike Mills (M.S. BYU) Mike was my first MS student at BYU. Mike is currently working as a full-time research biologist for the Central Utah Water District. This is an influential position at the state level. His thesis was published in *Oecologia*.

Jill Ayala (M.S. BYU) Jill successfully defended her thesis and graduated in December, 2005. She teaches at UVU. Her thesis was published in *Biological Invasions*.

Matthew Pyne (M.S. BYU) Matt graduated in December, 2005. He completed his Ph. D. at Colorado State University in 2014. He is an Assistant Professor in the Biology Department at Lamar University, Texas.

Adrian Bell (M.S. I was co-advisor with Steve Peck) Adrian has completed his theoretical study of predator-prey interactions. His thesis was published in the *Journal of Theoretical Biology*. I invited Andy Sih from UC Davis to present a seminar at BYU to get his feed-back on Adrian's project and found that Andy was studying ideas similar to Adrian's thesis. Adrian finished his Ph.D. with Pete Richardson at UC Davis where Andy Sih was the department chair. Adrian is currently in Anthropology Department at the University of Utah.

Edmond Priddis (M.S. candidate) Ed graduated in December of 2007. He is currently teaching at Cochise College in Arizona. His thesis was published in *Diversity and Distributions*.

Xiaoben Jiang (M.S. candidate) Xiaoben graduated in April, 2010. He is currently working in a DNA sequencing lab in Shanghai, China.

Jeff Moore (M.S. candidate) Jeff finished his degree in 2010. He began his PhD program under Dave Berg at University of Miami in Ohio in January 2011.

Steve Merkley (M.S. candidate) Steve graduated from BYU in 2011 after successfully completing a Masters of Science degree. His thesis was published in *Freshwater Science*. He is currently pursuing a PhD at the University of California, Riverside.

Riley Rackliffe started his M.S. program in August of 2012. He successfully completed the requirements for his M.S. and graduated in December, 2014. His thesis is in review in *Freshwater Science*.

Doug Fairbanks started his M.S. program in my lab in August of 2014.

All of my graduate students have been at least partially supported by external funding. They continue to successfully pursue their career aspirations in my field. None of my graduate students have failed to complete their graduate program.

I have served on 22 additional graduate committees in the Biology, Geology, and Civil Engineering Departments at BYU.

UNDERGRADUATE STUDENTS MENTORED (Where are they now?)

I have mentored between 70 and 80 undergraduate students since coming to BYU. John Rothlisberger (mentored 4 years) is a co-author on an article showing differences in the dim light sensitivity of four species of trout. He finished a Masters degree from Utah State University in freshwater ecology and his Ph. D. in freshwater ecology with David Lodge at the University of Notre Dame. He recently accepted a permanent research position with the US Forest Service stationed in the Mountain West. I have happily supported John with letters of recommendation as his career has developed. Mark Merkley (mentored for 2 years), had a summer intern at the Savannah River Ecology Laboratory (SREL), and he is lead author on an article we published using bacteria as bioindicators. I served as Mark's advisor for his Honors Thesis. He is currently in a Ph.D. program in medical sciences at the medical branch of the University of Georgia in Augusta. Ben Shettel (mentored for 2 years) finished medical school in British Columbia. Adrian and Amy Bell were mentored for 3 years. I was Adrian's co-advisor for his MS degree. Amy is teaching elementary school in Davis while Adrian pursues a Ph.D. at UC Davis. Brian Allen (mentored 4 months), is in medical school at the University of Washington. Connie Ford (mentored 1 year), is working with a consulting firm in New Mexico where she is an aquatic technician for a consulting firm. She learned these skills in my lab. Chris Love (mentored 4 months), is in dental school at UNLV. Dathan and Carina Young were mentored for 1 year. Dathan is in law school, and Carina is in graduate school in environmental sciences at William and Mary University.

Carina's interest in environmental science was developed in my lab. Spring Ogilvie (mentored 8 months), graduated with a teaching composite major in biology. Tiffany Cragun (mentored 1 year) graduated, married, and moved to Alaska. Ed and Kari Priddis were mentored 2 years. I was Ed's graduate advisor. Dan Rhoten, Nate McKnight, and Dave Martin were mentored 1 year. All three are in dental school. Scott Seaman and Briel Loiseau were mentored 4 months. Scott is in dental school, and Briel is in medical school. Eric Barker, Candice Rollins, Robert Johnson, John Rucker, Nathan Muiana, Mark Williams, Brian Redmond, and Ryan Baker worked in my lab for one year. Five of the eight are in professional schools, and one is on a church mission. Seth Goodman, Tammy Thompson, and David Black were mentored 1 year. Seth is going to chiropractic school. Tammy had a baby, and David is in optometry school. Don Phipps, Aaron Sommerfeldt, Chip Ungicht, Alice Davis, and Nate Bemis were mentored for 8 months. Don and Nate are in dental school, Aaron is working at the language training center in Monterey CA, whereas Chip and Alice are finishing their undergraduate degrees. Christine Scott (4 months) moved to Oklahoma with her husband and is seeking employment in a fish biology lab. Jacob Fillerup (2 years), Cameron Kmetsch (1 year), Wendy Vardeman (1 year), Diane Romrell (1 year), Lane Nebeker (2 years), Jeff Moore (1 year), Steve Merkley (1 year), Ashley Hall (4 months), Taran Esplin (4 months), Shelle Hyde (1 year), and Jenna Furniss (1 year) have all graduated. Jacob went to veterinary school at CSU. Cameron is in dental school. Diane is an environmental consultant and Ashley has applied to medical school. Both Jeff Moore and Steve Merkley are my current graduate students. Leilani Wight (environmental consultant, streams and wetlands), Frans Lambrechtsen, Chris Busath, Brianne Edwards, and Marci Nelson began working in my lab in 2010 on the restoration of Hobbie Creek. Doug Fairbanks (Doug is a graduate student in my lab), Devon Munk, Jeremy Rehm (graduate school at Brown U.), Lexi Balleck, Zack Burnham (law school, Syracuse), Devon Munk, Aaron Moeller (FBI or CIA), Bret Hansen (applied to graduate school in my field, U. of U.) and Holly Waddel (grad school in our department) worked on various projects in my lab from 2011 to 2013. **My current group is: Jacob Sowards (medical school), Drew Bernhisel (medical school), Isabel Justiniano, Summer Spencer, Madison Maxwell (secondary education), Sterling Adams (medical school), and Peter Welsh.**

My goal is to develop **long-term** mentoring relationships that provide undergraduate students with opportunities to achieve their career goals. I write letters of recommendation for around 20 undergraduate students each year. Most are from my BIO 350 and BIO 220A courses, and many are applying to dental or medical school.

CITIZENSHIP

Department (Zoology, then Integrative Biology, then Biology at BYU)

Graduate Student Office Space Coordinator 2000 - 2002

Graduate Seminar Coordinator (Zoo and InBio 696r) 2002 - 2004

Committee Chair, Evolutionary Ecologist Search January 2003

CFS mentoring committee member for Sean Clark, February 2005 – 2007

Graduate Coordinator of the Biology Department January 2007 – 2010

Committee member, Evolutionary Ecologist Search September 2007

Committee member, Department Graduate Committee January 2010 – present

CFS mentoring committee member for Roger Koide, August 2012 – present

College of Biology and Agriculture (BYU)

Predental Committee Member 2001 – 2003

(During the Fall semester I interviewed and wrote letters of recommendation for 4 to 6 predental students each week.)

Member of the Editorial Board for the *Journal of the Western North American Naturalist*, February 2005 – 2007.

Chair of the Editorial Board for *Journal of the Western North American Naturalist*, 2007 – present.

Associate Editor for freshwater invertebrates, *Journal of the Western North American Naturalist*, 2007 – present.

Committee member, Search for a College Safety Officer September 2007

Review Committee, Faculty Mentoring Environments Grants, 2007 & 2008

Review Committee, ORCA Proposals, January 2008 to present

Review Committee, SANT Proposals, August 2012 to 2014.

University (BYU)

Animal Care Committee Member (IACUC), 2000 – 2007, (On average, we reviewed between 3 to 5 proposals each month. I served longer on this committee than any other member except for Mel Carr, Ed Jackson, and Earl Albee.)

State, Regional, National, and International

Associate Editor for *Wetlands*, The journal of the International Society of Wetland Scientists, 2004 – 2007.

Member of the Committee to Restore Native Least Chub (*Iotichthys phlegethonitis*), Utah Division of Wildlife Resources, Salt Lake City, Ut, 2002 - present

Member of the Committee to Restore Native June sucker (*Chasmistes liorus*), Utah Division of Wildlife Resources, Salt Lake City, Ut, 2005 - present

Co-Chair of the International Profiles Committee for the North American Benthological Society, 2003 – 2004 (I co-chaired this committee during its first year, and helped set the agenda for subsequent years.)

Committee Member of the International Profiles Committee for the North American Benthological Society, 2004 – 2007.

Presentations to local civic leaders (Provo City Energy Commission) on Climate Change. November – December, 2014 and 2015.

PERSONNEL RECORD

January 1, 2016

1. Reuben Ward Rhees Professor Department of Physiology & Developmental Biology

2. Educational History:

University of Utah, Salt Lake City, UT	1971-72	Anatomy, Medical School	Post-Doctoral
Colorado State Univ., Ft. Collins, CO	1967-71	Physiology	Ph.D.
University of Utah, Salt Lake City, UT	1964-67	Pharmacy	B.S.
Utah State University, Logan, UT	1959-61	Pre-Pharmacy	NA

3. Professional Positions:

Brigham Young University	2002-2003	Chair, Physiology & Developmental Biology
Brigham Young University	1985	Professor of Zoology
University of California at Los Angeles	1986	Visiting Professor The Brain Research
Institute		
Brigham Young University	1977-85	Associate Professor of Zoology
Brigham Young University	1973-77	Assistant Professor of Zoology
Weber State College	1972-73	Assistant Professor of Health Occupations

4. Professional Organizations and Honor Societies:

he Society for Neuroscience

Rho Chi - Pharmacy Honor Society
 Phi Kappa Phi
 Society of Sigma Xi
 Utah Academy of Sciences, Arts & Letters
 Inter-mountain Chapter of the Society for Neuroscience

5. Honors and Awards

Inspiring Integrity Award, Regional Recognition from the National Society of Collegiate Scholars, 2008.
 The Award included a stipend.
 Award for Distinguished Contributions to Accessibility, University Accessibility Center, for outstanding service and advocacy at Brigham Young University, 2008.
 Alumni Professorship Award, Brigham Young University Alumni Association, 2006-2009
 Recipient of the Karl G. Maeser General Education Professorship Award from Brigham Young University for recognition in teaching General Education and Honors, 1999-2002
 College Teaching Excellence Award - College of Biology and Agriculture, 2001
 Recipient of the Wesley P. Lloyd Award for Distinction in Graduate Education from Brigham Young University in recognition of exemplary performance in graduate education, 1998-99.
 Recipient of the Outstanding Faculty Member in the Department of Zoology for the academic year 1989-90 in recognition of outstanding achievement and service (research, teaching, and citizenship).
 Recipient of a Karl G. Maeser Distinguished Teaching Award from Brigham Young University (Karl G. Maeser Scholarship Society) in recognition of a distinguished and devoted career of meritorious service in teaching at Brigham Young University, 1992-1993.

6. Committee and other professional activities:

A. Department

Department Rank and Advancement Committee, Chair 2010
 Department Curriculum Committee, Member, 2005-2010
 Department Rank and Advancement Committee, Member 2004- 2009
 Department Professional Development Committee, 2004-present
 Chair, Department of Physiology and Developmental Biology, 2002-03
 Assistant Chair, Department of Physiology, 2002-03
 Department Advancement in Rank Committee
 Department Executive Committee
 Graduate Coordinator, 1995 to 2001

1976-77

Chairman, Faculty Search Committee, 1988, 1989
 Department Executive Committee, member, 1984-1991
 Physiology and Anatomy Division Coordinator, 1984-1991
 Zoology Professional Development Committee, Chair, 1983-1984
 Food Science and Nutrition Department, Advisory Committee, Medical Dietetics Program, member,

Nursing Department, Graduate Committee, member, 1974-1975
 Department Curriculum Committee, member, 1974-75, 1991-1992
 Zoology Professional Development Committee, member 1975-1976, chair, 1990-94

B. College

College Curriculum Committee, 2004 to 2010
 College Leadership Council -2002 -2003
 College Graduate Committee, chair, 1997-1998
 College Catalogue Committee, 1991, 1992, 1993, 1994, 1995, 1996, 1997
 College Symposium Committee, chair, 1990-1991
 College Seminar Committee, member, 1989, 1992
 Professional Development Committee, chair, 1983-1984
 Professional Development Committee, member, 1981, 1982

C. University

Faculty Advisory Council, Committee Member , 2006, 2007, 2008, 2009
 University Graduate Council, member, 1994-97
 University Advancement in Rank Committee, member, 1984-1987
 University Ad Hoc Committee on Health Related Programs, member, 1974-1975
 Pre-Dental Committee, chair, 1977-1978
 Pre-Dental Committee, member, 1974-1975
 Pre-Medical Committee, member, 1973-1974

D. National

Howard Hughes Medical Institute Pre-doctoral Fellowships Panel, member, 1999- 2001

7. Teaching assignments for last 8 years, mentoring last 8 years, graduate committee assignments

A. Courses	Semester	# of Students	Teacher Evaluation
PDBio 305 (sec 2)	Winter 2011	124	(Instructor 7.2)
PDBio 305 (sec 4)	Winter 2011	123	(Instructor 6.7)
PDBio 305 (sec 1)	Spring 2011	129	(Instructor 7.4)
PDBio 601 (sec 1)	Fall 2011	9	
PDBio 305 (sec 1)	Fall 2011	115	(Instructor 7.6)
PDBio 305 (sec 2)	Fall 2011	115	(Instructor 7.4)
PDBio 349 (sec 1)	Fall 2011	3	
PDBio 305 (Sec 3)	Winter 2010	132	(Course 7.2; Instructor 7.5)
PDBio 305 (Sec 5)	Winter 2010	128	(Course 7.2; Instructor 7.6)
PDBio 601	Fall 2010	11	(Team Instructor)
PDBio 305 (Sec 1)	Fall 2010	115	(Course 7.1; Instructor 7.3)
PDBio 305 (Sec 3)	Fall 2010	111	(Course 7.3; Instructor 7.5)
PDBio 305 (Sec 3)	Winter 2009	138	Course 7.1; Instructor 7.4
PDBio 305 (Sec 5)	Winter 2009	130	Course 7.3; Instructor 7.4
PDBio 349R	Winter 2009	1	
PDBio 494R	Winter 2009	1	
PDBio 495R	Winter 2009	1	
PDBio 305	Spring 2009	113	Course 7.1; Instructor 7.5
PDBio 601	Fall 2009	7	Team Taught
PDBio 305(sec 1)	Fall 2009	108	
PDBio 305(sec 5)	Fall 2009	109	

PDBio 349R	Fall 2009	3	
PDBio 305(sec2)	Winter 2008	159	Course 7.0; Instructor 7.3
PDBio 305(sec5)	Winter 2008	148	Course 7.0; Instructor 7.2
PDBio 494R	Winter 2008	1	Course 8.0; Instructor 8.0
PDBio 305	Spring 2008	149	Course 7.3; Instructor 7.5
PDBio 349R	Spring 2008	1	
PDBio 305(sec1)	Fall 2008	137	Course 7.2; Instructor 7.4
PDBio 305(sec3)	Fall 2008	136	Course 7.3; Instructor 7.6
PDBio 349R	Fall 2008	1	
PDBio 601	Fall 2008	9	Team Taught
PDBio 305	Winter 2007	148	Course , 7.1; Instructor 7.3
PDBio 305	Winter 2007	145	Course, 7.2; Instructor 7.5
PDBio 601	Winter 2007	6	Team Taught
PDBio 349R	Winter 2007	1	
PDBio 305	Spring 2007	154	Course, 7.1; Instructor 7.4
PDBio 305	Fall 2007	136	Course, 7.1; Instructor 7.3
PDBio 305	Fall 2007	140	Course 6.9; Instructor 7.1
PDBio 349R	Fall 2007	1	Course 8.0; Instructor 8.0
PDBio 305	Winter 2006	187	Course, 7.0; Instructor 7.4
PDBio 305	Winter 2006	179	Course, 7.3, Instructor 7.6
PDBio 349R	Winter 2006	1	
PDBio 495R	Winter 2006	1	
PDBio 305	Spring 2006	179	Course, 6.8; Instructor 7.4
PDBio 349R	Spring 2006	1	
IAS 399R	Spring 2006	1	
PDBio 305(2)	Fall 2006	166	Course 6.9; Instructor 7.2
PDBio 305(3)	Fall 2006	161	Course 7.3; Instructor 7.5
PDBio 349R	Fall 2006	1	
PDBio 305	Winter 2005	237	Course 7.0; Instructor 7.4
PDBio 305	Winter 2005	179	Course 7.0; Instructor 7.3
Religion 324	Winter 2005	36	
Intreg 338	Winter 2005	145	1 lecture
PDBio 349R	Winter 2005	5	
PDBio 494R	Winter 2005	1	
PDBio 305	Spring 2005	169	Course 6.9; Instructor 7.1
PDBio 494R	Spring 2005	1	
PDBio 305	Fall 2005	187	Course 7.0; Instructor 7.4
PDBio 305	Fall 2005	173	Course 7.0; Instructor 7.3
PDBio 349R	Fall 2005	3	
PDBio 601	Fall 2005	8	4 lectures
PDBio 305	Winter 2004	190	Course 6.8; Instructor 7.3
Intreg 338	Winter 2004	150	1 lecture
PDBio 349R	Winter 2004	2	
PDBio 494R	Winter 2004	1	
PDBio 305	Spring 2004	218	Course 6.4; Instructor 6.8
PDBio 349R	Spring 2004	2	
PDBio 305	Fall 2004	102	Course 7.2; Instructor 7.6
PDBio 349R	Fall 2004	2	
Intreg 338	Fall 2004	135	1 lecture

B. Undergraduate research and teaching mentored

Winter 2011	Elizabeth Schulzinger, Rebecca Isaacson, Samantha Anderson, Michael Henderson
Spring 2011	Elizabeth Schulzinger

Fall 2011	Elizabeth Schulzinger, Rebecca Isaacson, Erika Brown, Lauren Kelson
Winter 2010	Samantha Anderson, Michael Henderson, Rebecca Isaacson, Elizabeth Schulzinger
Fall 2010 -	Samantha Anderson, Michael Henderson, Rebecca Isaacson, Elizabeth Schulzinger
Winter 2009	Justin LeBaron, Steve Christiansen, Talon Haynie, Annie Allred, Kimberlee Grant, Katelyn Schwanke
Spring 2009	Samantha Anderson, Katelyn Schwanke, Michael Henderson
Fall 2009	Samantha Anderson, Crystal Blake, Michael Henderson, Katelyn Schwanke, Kimberlee Grant, Annie Allred Kirton, Rebecca Isaacson, Elizabeth Schulzinger
Winter 2008	Justin LeBaron
Spring 2008	Justin LeBaron
Fall 2008	Justin LeBaron
Winter 2007	Tim Jenkins, Rachel Voss, Amanda Brannock, Amy Stringer, Judy Ou, Daniel Flanagan, Katelyn Merrill
Spring 2007	Katelyn Merrill, Tim Jenkins
Fall 2007	Tim Jenkin, Rachel Voss, Amanda Brannock, Amy Stringer
Winter 2006	Nathan Hull, Katelyn Merrill, Matt Bateman, Amanda Brannock, Amy Stringer, Rachel Voss, Judy Ou, Daniel Flanagan, Tim Jenkins
Spring 2006	Nathan Hull
Fall 2006	Nathan Hull, Katelyn Merrill, Matt Bateman, Amanda Brannock, Amy Stringer, Rachel Voss, Judy Ou, Daniel Flanagan, Tim Jenkins
Winter 2005	Elli Hugh, Brady Adams, Nathan Hull, Qunitin Rupp
Fall 2005	Nathan Hull, Annette Bailey, Brady Adams
Fall 2004	Sarah Lillenberg, Brandon Curfew

C. Graduate Student Committees

2010	Crystal Blake, Ph.D. member
2008	Crystal Blake, Ph.D. member
2008	Kate Kmetzsch, Ms, member
2007	Crystal Blake, MS , member
2006	Crystal Blake, M.S., member
2004	Li Hong Bu, Ph.D. member
2003	Li Hong Bu, Ph.D. member
2002	Li Hong Bu, Ph.D. member
2001	Li Hong Bu, Ph.D. member
2000	Scott Weber, M.S., member
	Emily Stuart, M.S., member
	Li Hong Bu, Ph.D., member
1999	Scott Weber, M.S., member
1998	Lori Jean Mathias, M.S., chair
	Richard Mills, Ph.D., member
	David A. Eliason, Honors, chair
	Scott Weber, M.S., member

8. Scholarship

A. Scholarly writing

1. Edited Scholarly, Instructional books, and Study Aids (None were developed from graduate student thesis)

Van De Graaff, K. M., **R. W. Rhees** and C. H. Creek. 1999. Human Anatomy and Physiology Study Cards 4th Edition. 320 pages. McGraw-Hill Publishers.

Van DeGraaff, K.M., **R. W. Rhees** and C.H. Creek. 1996. Human Anatomy and Physiology Study Cards. 2nd Edition. 320 pages. Wm. C. Brown Publishers.

- Van De Graaff, K.M. and R.W. Rhees. 1989. Anatomia of Fisiologia Humanas. Schaum's Outline of Theory on Problems of Human Anatomy and Physiology. Nueva Editorial Interamericana - McGraw Hill, Mexico.
- Van De Graaff, K.M., R.W. Rhees and C.H. Creek. 1990. Study Cards for Biology. 320 pages. Wm. C. Brown Publishers.
- Van De Graaff, K., R.W. Rhees, and C.H. Creek. 1989. Anatomy and Physiology Study Cards, 300 cards, Wm. C. Brown Publishers, Dubuque, Iowa.
- Van De Graaff, K., R.W. Rhees, and C.H. Creek. 1989. Anatomy and Physiology Study Notes, 350 pages, Wm. C. Brown Publishers, Dubuque, Iowa.
- Van De Graaff, K. and R.W. Rhees. 1986. Human Anatomy and Physiology. Schaum's Outline Series, 357 pages, McGraw-Hill, NY.
- Van De Graaff, K. and R.W. Rhees. 1989. Anatomie Et Physiologie Humaines. Schaum's Outline Series - French Edition. 347 pages. McGraw-Hill, New York.
- Van De Graaff, K. and R.W. Rhees. 1983. Human function and structure study guide. 2nd Ed., 320 pages, McGraw Hill, N.Y.
- Van De Graaff, K. and R.W. Rhees. 1978. Human function and structure study guide. 272 pages, McGraw Hill, N.Y.

2. Chapters in Books and Review - none

3. Publications in reviewed scholarly journals

- Lephart, E.D., R.W. Rhees, K.D. R. Setchell, L.H. Bu, and T.D. Lund. 2003. Estrogens and phytoestrogens: brain plasticity of sexually dimorphic brain volumes. The Journal of Steroid Biochemistry and Molecular Biology. 85:299-309.
- Lephart, E. D., T. W. West, K. S. Weber, R. W. Rhees, K.D. R. Setchell, H. Adlercreutz, and T. D. Lund. 2002. Neurobehavioral effects of dietary soy phytoestrogen. Neurotoxicology and Teratology, 24:5-16.
- Rhees, R. W., E. D. Lephart and D. Eliason. 2001. Effects of maternal separation during early postnatal development on male sexual behavior and female reproductive function. Behavioral Brain Research 123:1-10.
- Stuart, E. B., J. M. Thompson, R. W. Rhees, and E. D. Lephart. 2001. Steroid hormone influence on brain calbindin-D28k in male prepubertal and ovariectomized rats. Developmental Brain Research 129:125-133.
- Lephart, D.E., S.B. Call, R. W. Rhees, N.A. Jacobson, K.S. Weber, J. Bledsoe, and C. Teuscher. 2001. Neuroendocrine regulation of sexually dimorphic brain structure and associated sexual behavior in male rats is genetically controlled. Biology of Reproduction 64:571-578.
- Lund, T. D., R. W. Rhees, K. D. R. Setchell, and E. D. Lephart. 2001. Altered sexually dimorphic nucleus of the preoptic area (SDN-POA) volumes in adult Long-Evans rats by dietary soy phytoestrogens. Brain Research 914:92-99.

- Rhees, R. W., H. N. Al-Saleh, E. W. Kinghorn, D. E. Fleming and E. D. Lephart. 1999. Relationship between sexual behavior and sexually dimorphic structures in the anterior hypothalamus in control prenatally stressed male rats. *Brain Research Bulletin* 50(3):193-199.
- Mathias, L.J., N.A. Jacobson, R.W. Rhees and E.D. Lephart. 1999. Brain aromatase in control versus castrated Norway Brown, Sprague-Dawley and Wistar adult rats. *P.S.E.B.M.* 221:126-130.
- Prince, K.N., J.S. Prince, E.W. Kinghorn, D.E. Fleming, and R.W. Rhees. 1998. Effects of sexual behavioral manipulation on brain plasticity in adult rats. *Brain Research. Bulletin* 47(4):349-355.
- Rhees, R.W., B.A. Kirk, S.Sephton, and E.D. Lephart. 1997. Effects of prenatal testosterone on sexual behavior, reproductive morphology and LH secretion in the female rat. *Developmental Neuroscience* 19: 430-437.
- Lephart, E.D., M..A. Watson, R.W. Rhees, D.R. Ladle, and N.A. Jacobson, 1997. Developmental expression of calretinin in the medial basal hypothalamus and amygdala from male and female rats. *Neuroscience Research*, 28(3):269-273.
- Lephart, E.D., M. .A. Watson, N.A. Jacobson, R.W. Rhees, and D.R. Ladle. 1997. Calbindin-D28k is regulated by adrenal steroids in hypothalamic tissue during prenatal development. *Developmental Brain Research*, 100:117-120.
- Mathias, L., R.W. Rhees, N.A. Jacobson, D.R. ladle, and E.D. Lephart. 1997. Brain aromatase activity in different strains of castrated and intact male rats. *Neuroscience* 23:139.9.
- Lephart, E.D. M.A. Watson, R.W. Rhees, S. Diano, and T.L. Horvath. 1997. Co-localization of aromatase cytochrome P450 and calbindin-D28k and androgen regulation of calbindin-D28k during perinatal development. *Neuroscience* 23: 139.10.
- Lephart, E.D., M.A. Watson, N.A. Jacobson, R.W. Rhees, and D.R. Ladle. 1997. Calbindin-D-28k is regulated by adrenal steroids in hypothalamic tissue during prenatal development. *Developmental Brain Research*. 100:117-126.
- Lephart, E.D., D.R. Ladle, N.A. Jacobson, and R.W. Rhees. 1996. Inhibition of brain 5 -reductase in pregnant rats: effects on enzymatic and behavioral activity. *Brain Research* 739:356-361.
- Diaz, D.R., D.E. Fleming, and R.W. Rhees. 1995. The hormone-sensitive early postnatal periods for sexual differentiation of feminine behavior and luteinizing hormone secretion in male and female rats. *Developmental Brain Research*. 86:227-232.
- Kinghorn, E.W., D.E. Fleming, and R. W. Rhees. 1992. The effects of background photic stimulation on visual cortical hyper synchronous bursting. *Neuroscience* 18(1) 293.
- Fleming, D.E., E.W. Kinghorn, R.W. Rhees, R.H. Anderson, and E. Smythe. 1992. Biological predictors of masculine sexual behavior in prenatally stressed and non-stressed rats. *Bulletin Psychonomic Society* 30(6): 513-515.
- Rhees, R.W., J.E. Shryne, and R.A. Gorski. 1990. Termination of the hormone-sensitive period for differentiation of the sexually dimorphic nucleus of the preoptic area in male and female rats. *Developmental Brain Research* 52: 17-23.
- Rhees, R.W., J.E. Shryne, and R.A. Gorski. 1990. Onset of the hormone-sensitive perinatal period for sexual differentiation of the sexually dimorphic nucleus of the preoptic area in female rats. *Journal of Neurobiology* 21(5): 781-786.

- Lephart, E.D., D.E. Fleming, and R.W. Rhees. 1989. Fetal male masculinization in control and prenatally stressed rats. *Developmental Psychobiology* 22(7) 707-716.
- Anderson, R.H., D.E. Fleming, R.W. Rhees, and E. Kinghorn. 1986. Relationship between sexual activity, plasma testosterone, and the volume of the sexually dimorphic nucleus of the preoptic area in prenatally stressed and non-stressed rats. *Brain Research* 370: 1-10.
- Fleming, D.E., R.H. Anderson, R.W. Rhees, and E. Kinghorn. 1986. Effects of prenatal stress on sexually dimorphic asymmetries in the cerebral cortex in the male rat. *Brain Research Bulletin* 16: 395-398.
- Anderson, R.H., R.W. Rhees, and D.E. Fleming. 1985. Effects of prenatal stress on differentiation of the sexually dimorphic nucleus of the preoptic area (SDN-POA) of the rat brain. *Brain Research* 332: 113-118.
- Rhees, R.W., D.S. Badger, and E.E. Fleming. 1983. Naloxone induces copulation in control but not in prenatally stressed male rats. *Bulletin of the Psychonomic Society* 21 (6) 498-500.
- Rhees, R.W., C.T. Wilson, and R.W. Heninger. 1983. Influence of streptozotocin diabetes and insulin therapy on plasma corticosterone levels in male rats. *Hormone and Metabolic Research* 15:353-354.
- Wilke, D.L., S.R. Tseu, R.W. Rhees, and D.E. Fleming. 1982. Effects of environmental stress and ACTH administration during pregnancy on maternal and fetal plasma androstenedione in the rat. *Hormones and Behavior* 16(3):293-303.
- Rhees, R.W., and D.E. Fleming. 1981. Effects of malnutrition, maternal stress, or ACTH injections during pregnancy on sexual behavior of male offspring. *Physiology and Behavior* 27:879-882.
- Van Kampen, K.R., R.W. Rhees, and L.F. James. 1978. Locoweed poisoning in the United States. In *"Affects of poisonous plants on livestock."* Pages 465-471. Academic Press, N.Y.
- Rhees, R.W., B.I. Grosser, and W. Stevens. 1976. The autoradiographic localization of ^3H -dexamethasone in the brain and pituitary of the rat. *Brain Research* 100:151-156.
- Booth, G.M., R.W. Rhees, D. Ferrell, and J.R. Larsen. 1976. Determination of the release of bound fluchloralin residues from soil into water. In "Bound and conjugated pesticide residues." ACS Symposium Series 29:364-365.
- Booth, G.M., R.W. Rhees, R.V. Peterson, and J.R. Larsen. 1975. Metabolism and autoradiographic localization of Di-2-Ethylhexyl Phthalate (DEHP) in mice and model ecosystem. *Proceedings--Sixth International Congress of Pharmacology*. 6:225-235.
- Rhees, R.W., W. Stevens, and B.I. Grosser. 1975. Effect of steroid competition and time on the uptake of ^3H -Corticosterone in the rat brain. An autoradiographic study. *Brain Research* 83:293-300.
- Rhees, R.W., J.H. Abel, and D.W. Haack. 1973. Uptake of tritiated steroids in the brain of the duck (*Anas platyrhynchos*). An autoradiographic study. *General and Comparative Endocrinology* 18:292-300.
- Rhees, R.W., J.H. Abel, and J.R. Frame. 1972. Effect of osmotic stress and hormone therapy on the hypothalamus of the duck (*Anas platyrhynchos*). *Neuroendocrinology* 10:1-22.
- Komnich, H., R.W. Rhees, and J.H. Abel. 1972. Fine structure and function of chloride cells of mayfly gills. A histochemical and autoradiographic study. *Cytobiologie* 5:65-82.

Haack, D.W., J.H. Abel, and R.W. Rhees. 1972. Functional zonation of the adrenal in the Pekin Duck. *Cytobiologie* 5:247.

Abel, J.H., R.W. Rhees, D.W. Haack. 1971. Studies of the Corticotroph cells in the pituitaries of herring gulls, *Cytobiologie* 3:299-323.

4. Published Abstracts

Rhees, R. W., L. Bu, B.W. Millet, E.D. Lephart. 2003. Dietary phytoestrogens alter food and water in young and mid-aged male rats. 33rd Annual Meeting of the Society for Neuroscience, New Orleans.

Lephart, E.D., R.W. Rhees, K.D.R. Setchell, and T.T. Lund. 2002. Plasticity of sexually dimorphic brain volumes by dietary soy phytoestrogens in Long-Evans rats during adulthood. Society for Neuroscience, 32nd Annual Meeting, Orlando, FL, November 206.

Lephart, E.D., R.W. Rhees, T.W. West, L.Y. Tian, L.B. Bu, D.L. Simmons, K.D.R. Setchell, H. Adlercreutz, T.D. Lund. 2001. Effects of dietary soy phytoestrogens on brain aromatase, anxiety behavior, neural structure and memory. 4th International Symposium on the Role of Soy in Preventing and Treating Chronic Disease. San Diego, CA.

Lephart, E.D., R.Ward Rhees, K.D.R. Setchell and T.D. Lund. 2001. Dietary Soy Phytoestrogens Alter Sexually Dimorphic Hypothalamic Nuclei in Adult Rats. Experimental Biology 2001, Symposium on Brain Aging and Nutrition, Journal of Nutrition 144:2001.

Lephart, E.D., R.Ward Rhees, K.D.R. Setchell and T.D. Lund. 2001. Dietary Soy Phytoestrogens Alter Sexually Dimorphic Hypothalamic Nuclei in Adult Rats. Experimental Biology 2001, Symposium on Brain Aging and Nutrition, Orlando, FL. March 31- April 4, 2001.

Lund, T.D., T.W. West, R.W. Rhees and E.D. Lephart. 2001. Neurobehavioral effects of dietary soy phytoestrogens II. Annual Meeting of the Society for Neuroscience, San Diego, CA, Nov. 10-15.

Lephart, E.D., R.W. Rhees, T.W. West, L.Y. Tian, L.H. Bu, D.L. Simmons, K.D.R. Setchell, H. Adlercreutz, T.D. Lund. 2001. Effects of Dietary Soy Phytoestrogens on Brain Aromatase, Anxiety Behavior, Neural Structure and Memory. 4th International Soy Symposium, San Diego, CA, Nov. 4-7, 2001.

Stuart, E.B, J.M. Thompson, R.W. Rhees, E.D. Lephart. 2000. Steroid hormone regulation of brain calbindin-D28K levels in prepubertal and adult ovariectomized rats. Society for Neuroscience Annual Meeting., New Orleans, LA, Nov. V26:512.15.

Crook, S., D.D. Busath, R.C. Davis, R.W. Rhees. 2000. Compressibility and thickness of supported lipid bilayers measured with an atomic force microscope. Society for Neuroscience Annual Meeting, New Orleans, LA, Nov. V26:800.7

Rhees, R.W., E. Stuart, E. Lephart. 2000. Quantitative study of steroid hormone influence on brain calbindin D_{28k} levels in prepubertal rats. Vith International Conference on Hormones, Brain and Behavior and The Society for Behavioral Neuroendocrinology, Madrid, Spain.
Trabajos del Instituto Cajal. Tomo LXXVII, 196-197.

Weber, K.S., K. D. Setchell, R. W. Rhees and E D. Lephart. 1999. Male and female perinatal or maternal brain aromatase is not altered by dietary phytoestrogens. Society for Neuroscience, Miami, Florida.

- Mathias, L., N.A. Jacobson, R.W. Rhees, and E.D. Lephart. 1998. Brain aromatase in castrated Norway Brown, Wistar and flutamide-treated Sprague-Dawley adult male rats. Xth International Congress on Hormonal Steroids. Quebec City, Canada..
- Rhees, R.W., M.A. Watson, N.A. Jacobson, D.R. Ladle, and E.D. Lephart. 1997. Calbindin-D-28k is regulated by adrenal steroids in hypothalamic tissue during perinatal development. 33rd International Congress of Physiological Sciences, St. Petersburg, Russia.
- Rhees, R.W., S.W. Davis, N.A. Jacobson, D.R. Ladle, and E.D. Lephart. 1996. Effects of stress during pregnancy on maternal and fetal medial basal hypothalamic (MBH) 5 reductase and aromatase activity. Society for Neuroscience Annual Meeting, Washington, D.C.
- Lephart, E.D., D. Ladle, N.A. Jacobson, and R. W. Rhees. 1996. Inhibition of brain 5 -reductase in pregnant rats: Effects on enzymatic and behavioral activity. 10th International Congress of Endocrinology. San Francisco.
- Rhees, R.W., S.W. Davis, N.A. Jacobson, D.R. Ladle, and E.D. Lephart. 1996. Effects of stress during pregnancy on maternal and fetal medial basal hypothalamic (MBH) 5-alpha-reductase and aromatase activity. Society for Neuroscience Annual Meeting, Washington, D.C.
- Lephart, E.D. and R.W. Rhees. 1995. Frontal cortical brain aromatase enzyme activity in male and female rats during perinatal development. Neuroscience, San Diego, California.
- Prince, K.N., J.S. Prince, E.W. Kinghorn, D.E. Fleming and R.W. Rhees. 1994. The effects of hormonal and sexual behavior manipulation on brain plasticity in adult rats. The Society for Experimental Biology. Anaheim, CA.
- Rhees, R.W., Fleming, D.E. and Kinghorn, E.W. 1993. Effects of prenatal stress on sexual and non-sexual behavior in male rats. XXXII International Physiology Congress, Glasgow, Scotland.
- Kinghorn, E.W., D.E. Fleming, and R.W. Rhees. 1992. The effects of background photic stimulation on visual cortical hypersynchronous bursting. Neuroscience meetings, Anaheim, California.
- Rhees, R.W., S. Sephton, G.J. Bloch, and D.E. Fleming. 1991. Onset of the hormone-sensitive period for sexual differentiation in female rats. Neuroscience Meetings, New Orleans, Louisiana.
- Gale, S.D., G.J. Bloch, R.W. Rhees, and D.E. Fleming. 1991. Chronic testosterone (T) in feminized male rats during 15-30 days of age: sex reversal of behavioral function in adulthood. Neuroscience Meetings, New Orleans, Louisiana.
- Fleming, D.E., R.B. Burr, and R.W. Rhees. 1990. Sex differences in cortical development with visual deprivation. Neuroscience Meetings, St. Louis, Missouri
- Rhees, R.W., J.E. Shryne, and R.A. Gorski. 1989. Onset of the androgen-sensitive perinatal period for sexual differentiation of the sexually dimorphic nucleus of the preoptic area in female rats. Federation Meetings, New Orleans, Louisiana.
- Rhees, R.W., Anderson, D.K., and Fleming, D.E. 1983. Effects of prenatal stress on differentiation of the sexually dimorphic nucleus of the preoptic area (SDN-POA) of the rat. Paper presented at XIV ACTH Endocrinologica Congress, Stockholm, Sweden, June 27-30.
- Diaz, R., R.W. Rhees, and D.E. Fleming. 1989. Duration of the androgen-sensitive postnatal period for differentiation of sexual behavior and luteinizing hormone release in male and female rats. Federation Meetings, New Orleans, Louisiana.

- Lephart, E.D., R.W. Rhees, and D.E. Fleming. 1988. Alterations in maternal regulatory behavior and placental transport in environmentally stressed rats. American Society of Zoologists Meeting, San Francisco, California.
- Rhees, R.W., J.E. Shryne, and R.A. Gorski. 1987. Duration of the androgen sensitive postnatal period for differentiation of the sexually dimorphic nucleus of the preoptic area in male and female rats. Neuroscience Meetings, New Orleans, Louisiana.
- Fleming, D.E., R.W. Rhees, S.R. Williams, and S.M. Kurth. April 1986. Effects of environmental stress during pregnancy on maternal and fetal plasma corticosterone and progesterone in the rat. Federation Meetings, St. Louis, Missouri.
- Anderson, R.H., D.E. Fleming, R.W. Rhees, and E. Kinghorn. April 1986. Effects of prenatal stress on sexually dimorphic asymmetries in the cerebral cortex of the male rat. Federation Meetings, St. Louis, Missouri.
- Lindsay, L.G., R.W. Rhees, and D.E. Fleming. April 1985. Effects of tobacco smoke during pregnancy on sexual behavior of male rat offspring. Presented at Federation Meetings, Anaheim, California.
- Rhees, R.W., R.H. Anderson, and D.E. Fleming. August 1984. Relationship between male sexual behavior and size of the sexually dimorphic nucleus (SDN) of the preoptic area of the hypothalamus of the rat. American Physiology Society Meetings, Lexington, Kentucky.
- Rhees, R.W. and D.E. Fleming. 1980. Effects of prenatal stress on maternal physiology and offspring sexual differentiation. Sixth International Congress of Endocrinology, Melbourne, Australia.
- Rhees, R.W., L.F. James, and K.R. Van Kampen. 1978. Ultra-structural observations following locoweed (*Astragalus lentiginos*) poisoning in sheep. Presented at Federation Meetings, Atlantic City, New Jersey.
- Van Kampen, K.R., R.W. Rhees, and L.F. James. 1977. Locoweed poisoning in the United States. Invited paper, United States-Australia Symposium on Poisonous Plants. Logan, Utah.
- Booth, G.M., R.W. Rhees, R.V. Petersen, and J.R. Larsen. 1976. Metabolism and autoradiographic localization of Di-2-Ethylhexyl Phthalate (DEHP) in mice and a model ecosystem. Invited symposium paper at VI International Congress of Pharmacology, Helsinki, Finland, July 1976.
- Marcusen, D.C. and R.W. Rhees. 1976. Cortisol binding in sheep brain cytosol. Federation Proceedings 35(3):1393. Presented at Federation Meetings. Anaheim, California.
- Rhees, R.W., B.I. Grosser, and W. Stevens. October 1975. Differences in the autoradiographic localization of ³H-Corticosterone in the rat brain and pituitary. Presented at the American Physiological Society Meetings. San Francisco.
- Booth, G.M., P. Barney, R. Taylor, R.W. Rhees, and R.V. Petersen. 1975. Metabolism of DEHP in the deer mouse and in model ecosystem. VI International Congress of Pharmacology, Helsinki, Finland, July.
- Rhees, R.W., W. Stevens, and B.I. Grosser. October 1972. Relationship between nuclear and cytosol binding of ³H-Corticosterone in the rat brain. Society of Neuroscience, Second Annual Meeting, Boston.

Rhees, R.W., W. Stevens, B.I. Grosser, and D.J. Reed. 1972. Corticosterone binding by limbic structures of rat brain. IV International Congress of Endocrinology, Washington D.C.

5. Scholarly Presentation at National Meeting

Lephart, E.D., R.W. Rhees, S.B. Call, N.A. Jacobson, and C. Teuscher. 1999. Divergent SDN structure, brain aromatase, neuroendocrine function and mating behavior in Noble vs. Wistar rats. Society for Behavioral Neuroendocrinology, University of Virginia, Charlottesville, VA.

Lephart, E.D. and R.W. Rhees. 1998. The effects of maternal separation during early postnatal development on brain calbindin-D28k and calretinin levels, male sexual behavior and female reproductive function. June 21-23. Neuroendocrine Workshop, New Orleans.

Watson, M.A., N.A. Jacobson, D.R. Ladle, R.W. Rhees, and E.D. Lephart. 1997. Calbindin-D28k characteristics of calcium-binding protein important for neural development and function. 22nd Annual West Coast Biological Sciences Undergraduate Research Conference. Loyola Marymount University, Los Angeles, CA.

Rhees, R.W., Al-Saleh, H.N., Fleming, D.E., and E.W. Kinghorn. 1995. The effects of prenatal stress on behavior and brain morphology in male rats. Conference on Reproductive Behavior, Boston, Massachusetts.

Lephart, E.D., R.W. Rhees, and D.E. Fleming. 1982. Effects of intrauterine male position on fetal morphology and development in control and prenatally treated rats. American Society of Mammalogists Meeting. Snowbird, Utah.

Anderson, D.K., R.W. Rhees, and D.E. Fleming. 1982. Effects of prenatal stress in differentiation of the sexually dimorphic nucleus of the preoptic area (SDN-DOA) of the rat brain. Presented at the American Association of Veterinarian Anatomists Annual Meeting. Snowbird, Utah.

Fleming, D.E. and R.W. Rhees. 1979. The relationship between type of prenatal stress and behavioral feminization. Psychonomic Society Meetings. Arizona.

Rhees, R.W., G.M. Booth, and R.V. Petersen. April 1975. Localization of tritiated Di-2-Ethylhexyl Phthalate in mice. An autoradiographic study. Federation Proceedings 34:227. Atlantic City, New Jersey.

Booth, G.M. and R.W. Rhees. March 1975. Metabolism and bioaccumulation of bentazon in channel catfish (*Ictalurus punctatus*). Western Society of Weed Sciences.

Booth, G.M. and R.W. Rhees. August 1975. The release of bound 392 residues from soil into water. Bound Residue Conference of the American Chemical Society. Vail, Colorado.

Rhees, R.W. 1970. Adaptive growth of the corticotroph cells in the pituitaries of young herring gulls. Rocky Mountain Regional Conference of Developmental Biology. Yellowstone, Wyoming.

6. Scholarly Presentation at Local Meetings

Bu, L.H., R.W. Rhees, E.D. Lephart. 2002. Dietary Phytoestrogen influences on maternal food, water intake, body temperature, weight, and offspring growth parameters. Intermountain Society for Neuroscience Annual Meeting, Salt Lake City, Ut. Oct. 18.

- E.B. Stuart, J.M. Thompson, R.W. Rhees, and E.D. Lephart. 2000. Steroid hormone regulation of brain calbindin-D28K levels in prepubertal and adult ovariectomized rats. Intermountain Society for Neuroscience Annual Meeting, Salt Lake City, Ut. Oct. 30.
- Mathias, L., D.R. Ladle, N.A. Jacobson, M.A. Watson, E.D. Lephart, and R.W. Rhees. 1997. Brain aromatase cytochrome P450 activity in pigmented and non-pigmented intact and castrated male rats. Utah Academy of Sciences, Arts, and Letters. Ogden, Utah.
- Eliason, D.W., M.E. Watson, N.A. Jacobson, D.R. Ladle, L. Mathias, E.D. Lephart and R.W. Rhees. 1997. Effects of adrenalectomy of female reproductive physiology, pregnancy, offspring body weight and offspring mating behavior. Utah Academy of Sciences, Arts & Letters. Weber State University, Ogden, Utah.
- Davis, S.W., D. Ladle, N. Jacobson, E.D. Lephart, and R.W. Rhees. 1996. Effects of environmental stress on brain aromatase and 5-alpha-reductase activity in pregnant rats and their male and female fetuses. Utah Academy of Sciences, Arts & Letters. Utah Valley State College, Provo, Utah
- Ladle, D., N. Jacobson, R.W. Rhees, and E.D. Lephart. 1996. Inhibition of brain 5 -reductase alters behavioral activity in pregnant rats. Utah Academy of Sciences, Arts, and Letters. Utah Valley Stake College.
- Jacobson, N., D. Ladle, R.W. Rhees, and E.D. Lephart. 1996. Alterations in brain 5 -reductase enzyme activity in Bromocryptine treated pregnant rats. Utah Academy of Sciences, Arts, and Letters. Utah Valley State College.
- Rhees, R.W. 1995. Endocrinology for the Pharmacist. Invited speaker, 1995. Utah Pharmaceutical Association Annual Convention, St. George, Utah.
- Rhees, R.W. 1995. New concepts in neuroendocrinology. Invited speaker, 1995 Annual Mid-Year Conference, Utah Pharmaceutical Association, Salt Lake City, Utah.
- Kinghorn, E.W., R. W. Rhees, and D.E. Fleming. 1995. The effects of prenatal stress on behavior and brain morphology in male rats. Idaho Academy of Science, Boise, Idaho.
- Nelson, M., Lewis, M., Palmer, C., Coleman, L., Fleming, D.E. and R.W. Rhees. 1993. Effects of prenatal stress on differentiation of two sexually dimorphic structures in the male rat brain: the sexual dimorphic nucleus of the preoptic area (SDN-POA) and the anteroventral periventricular nucleus (AVPV). Utah Academy of Sciences, Arts and Letters, Southern Utah University.
- Prince, K., Al-Saleh, H., Hardy, R., Kinghorn, E.W., Fleming, D.E. and R.W. Rhees. 1993. Effects of prenatal environmental stress on sexual and non-sexual behavior in male rats. Utah Academy of Sciences, Arts and letters. Southern Utah University.
- Olsen, D.P., Al-Saleh, H. and R.W. Rhees, 1993. Effects of prenatal environmental stress on testicular weight and morphology in the rat. Utah Academy of Sciences, Arts and Letters. Southern Utah University.
- Robinson, K., Gubler, C., Devlin, L., Prince, K., Fleming, D.E. and R.W. Rhees. 1993. Effects of (1) prenatal stress and (2) hormone or environmental manipulation on adult open-field behavior in the rat. Utah Academy of Sciences, Arts and Letters. Southern Utah University.
- Sephton, S., R.W. Rhees and G. Block. 1990. Effects of prenatal androgen exposure on brain development in female rats. Utah Academy of Sciences, Arts & Letters, Provo, Utah.

- Ward, R., S. Bay, R.W. Rhees and D.E. Fleming. 1990. The effects of prenatal stress on reproductive and non-reproductive behavior in male offspring. Utah Academy of Sciences, Arts & Letters, Provo, Utah.
- Kirk, B., W.K. Sheffield, R.W. Rhees, and D.E. Fleming. 1988. Induction of the androgen - sensitive prenatal period for sexual differentiation of the brain in female rats. Utah Academy of Sciences, Arts & Letters, St. George, Utah.
- Diaz, R., R.W. Rhees, and D.E. Fleming. 1988. Duration of the androgen - sensitive postnatal period for differentiation of sexual behavior in male and female rats. Utah Academy of Sciences, Arts & Letters, St. George, Utah.
- Lindsay, L.G., R.W. Rhees, and D.E. Fleming. 1985. Effects of tobacco smoke during pregnancy on sexual behavior on male offspring. Utah Academy of Sciences, Arts & Letters, Provo, Utah.
- Anderson, R.H., R.W. Rhees, and D.E. Fleming. 1984. Relationship between testosterone, male sexual behavior and the sexually dimorphic nucleus (SDN) of the preoptic area of the hypothalamus in male rats. Utah Academy of Sciences, Arts & Letters, University of Utah.
- Daun, M.E., R. W. Rhees, and Fleming, D.E. 1983. Plasma testosterone titers in prenatally stressed male adult rats. Utah Academy of Sciences, Arts & Letters, Logan, Utah.
- Badger, D.S., R. W. Rhees, and Fleming, D.E. 1983. Naloxone induces copulation in control, but not in prenatally stressed male rats. Utah Academy of Sciences, Arts & Letters, Logan, Utah.
- Ganzell, S., Fleming, D.E., and R.W. Rhees. 1983. Reaction to environmental stress: Species and individual differences. Rocky Mountain Psychological Association, Snowbird, Utah.
- Kinghorn, E., S.M. Hurlock, E.E. Fleming, and R.W. Rhees. 1983. Adaptation to stress: A mother effect. Rocky Mountain Psychological Association, Snowbird, Utah.
- Anderson, D.K., R.W. Rhees, and D.E. Fleming. 1982. The effects of maternal stress on differentiation of sexually dimorphic regions of the rat brain. Utah Academy of Sciences, Arts & Letters, Ogden, Utah.
- Lephart, E.D., R.W. Rhees, and D.E. Fleming. 1982. The effects of prenatal stress on fetal development and placental transport of 2-deoxy glucose in the rat. Utah Academy of Sciences, Arts & Letters, Ogden, Utah.
- Lephart, E.D., R.W. Rhees and D.E. Fleming. 1981. The effects of prenatal stress on maternal weight, food and water intake in the rat. Utah Academy of Sciences, Arts & Letters, Brigham Young University, Provo, Utah.
- Smith, M., R.W. Rhees and D.E. Fleming. 1981. Prenatal Stress: Effects on maternal and fetal progesterone levels. Utah Academy of Sciences, Arts & Letters, Brigham Young University, Provo, Utah.
- Wilke, D., S. Tseu, R.W. Rhees and D.E. Fleming. 1980. The effects of prenatal stress on male offspring sexual behavior and development. Utah Academy of Sciences, Arts & Letters, Weber State College, Ogden, Utah.
- Porter, J.R. and R.W. Rhees. 1978. Steroid binding in the dog brain and pituitary. Utah Academy of Sciences, Arts & Letters, Utah State University Logan, Utah.

- Rhees, R.W. 1978. 3H-corticosterone and 3H-dexamethasone binding in the developing rat brain. An autoradiographic study. Utah Academy of Sciences, Arts & Letters, Utah State University, Logan, Utah.
- Marcusen, D.C. and R.W. Rhees. 1976. The binding of cortisol in sheep brain cytosols: Regional Distribution. Utah Academy of Sciences, Arts, & Letters, Weber State College, Ogden, Utah.
- Beverley, A. and R.W. Rhees. 1976. A comparison of the binding of cortisol and corticosterone in the dog brain. Utah Academy of Sciences, Arts, & Letters, Weber State College, Ogden, Utah.
- Richards, A.B., R.W. Rhees, and R.E. Seegmiller. 1976. Developmental anomaly induced by Diazepam (Valium) in the chick embryo. Utah Academy of Sciences, Arts, & Letters, Weber State College, Ogden, Utah.
- Richards, A.B., R.W. Rhees, and R.E. Seegmiller. 1976. A test for developmental anomaly induced by Diazepam (Valium) in the chick embryo. Proc. Ut. Acad. Arts, Sci., & Letters. 53(1):114-115.
- Rhees, R.W. 1975. The autoradiographic localization of 3H-Di-2- Ethylhexyl Phthalate, in selected mouse tissues. Utah Academy of Sciences, Arts, & Letters, University of Utah, Salt Lake City, Utah.
- Marcusen, D. and R.W. Rhees. 1975. Nuclear binding of 3H-Corticosterone in the brain. Utah Academy of Sciences, Arts, & Letters, University of Utah, Salt Lake City, Utah.
- Rhees, R.W. 1974. Corticosterone binding in the rat brain. Utah Academy of Sciences, Arts, & Letters, Brigham Young University, Provo, Utah.
- Kinghorn, E. W., Rhees, R.W., and D.E. Fleming. 1995. The effects of prenatal stress on behavior and brain morphology in male rats. Idaho Academy of Science, Boise, Idaho.

7. Other Evidence of Scholarly Accomplishments

Journal Referee Activity

Physiology and Behavior
Pharmacology Biochemistry and Behavior
Brain Research Bulletin

Howard Hughes Scholarship Program for Graduate Students in Physiology and Neuroscience. Washington D. C., February 2000. Spent two days in Washington D. C. reviewing applications with the panelist.

NSF - National Science Foundation Grant Review, Division of Integrative Biology and Neuroscience - Reviewed one research proposal - 2000

8. Unpublished Reports

Rhees, R.W., G.M. Booth, and A. Richards. 1974. (1) Localization of Tritiated Di-2-Ethylhexyl Phthalate in the mouse. An autoradiographic study. (2) Ultrastructural observations on lung tissue following Di-2-Ethylhexyl Phthalate Administration. University of Utah DEHP Toxicology Progress Report.

Booth, G.M. and R.W. Rhees. 1974. Determination of the release of bound 351 residues from soil into water. A research report submitted to BASF Wyandotte Corporation. 15 pp.

Booth, G.M., R.W. Rhees and R. Taylor. 1974. Metabolism of Di-2-Ethylhexyl Phthalate in the deer mouse, *Peromyscus maniculatus*, University of Utah DEHP Toxicology, Progress Report.

9. Graduate Student Theses and Dissertations

David C. Marcusen 1977 M.S. Cytosol binding of steroid hormones in sheep brains and pituitaries.

James P. Porter 1978 M.S. Glucocorticoid binding in the dog brain and pituitary.

Ann Beverley Haines 1978 M.S. Binding of glucocorticoids in the brain and thymus.

Harold O. Madsen 1979 M.S. Population control in Planaria Dugesia dorotocephala.

Marian D. Jensen 1979 M.S. Chromatography of caseins in pooled human milk during lactation.

Donald L. Wilke 1980 M.S. Effects of maternal stress on fetal development and plasma androstenedione.

Shauna R. Tseu 1981 M.S. Effects of prenatal stress on fetal and maternal corticosterone levels in the rat.

David K. Anderson 1982 M.S. Effects of prenatal stress on differentiation of the SDN-POA of the rat brain.

Mark S. Smith 1983 M.S. Perinatal hormone manipulation: Effects on offspring development and gender-related behavior in the male rat.

Lynn Gregory Lindsay 1985 M.S. Effects of tobacco smoke during pregnancy of sexual behavior of male rat offspring.

D. Rochellys Diaz 1989 M.S. Duration of the androgen-sensitive postnatal period for sexual differentiation of feminine behavior and luteinizing hormone secretion in male and female rats.

Blair A. Kirk 1989 M.S. Induction of the androgen-sensitive prenatal period for sexual differentiation in female rats.

Hamid N. Al-Saleh 1994 Ph.D. Effects of prenatal stress on behavior and brain morphology in male rats.

Karianne Neilson Prince 1994 M.S. The effects of hormonal and environmental manipulations on adult rat brain plasticity.

Lori Mathias 1998 M.S. Brain aromatase cytochrome P450 activity in pigmented and non-pigmented intact and castrated male rats.

David A. Eliason 1998 Honors These Advisor. The long-term implications of maternal separation and subsequent tactile stimulation deprivation in the rat neonate hypothalamic-pituitary-adrenal (HPA) response to stress.

9. Professional development activities and dates

Attended the neural control of behavior: convergent principles from divergent model systems, UCLA, March 2002.

Attended the Neuroendocrine workshop on stress, sponsored by the American Neuroendocrine Society, New Orleans, LA., June 1998.

Attended the Symposium on estrogen actions in the brain, sponsored by the Department of Neuroscience and Cell Biology at UCLA, November, 1998.

10. Research and Creative Activities Funding

Alumni Professorship Award, Brigham Young University, \$7,500, 2006-2009.

Karl G. Maeser General Education Professorship Award, Brigham Young University, \$21,000, 1999-2002.

Funded - National Science Foundation, New grant application entitled "Neuroscience Research Experience for Undergraduates by BYU" Co/PI, submitted for \$207,829 - 2000-2003.

Research Funded by the BYU Central Administration for being the Recipient of the Karl G. Maeser General Education Professorship, \$7,500/year for three years. 2000-2002.

Special Research Funding "BYU Neuroscience Center (with 7 other faculty members). Submitted and funded by the BYU Central Administration, \$30,000. 1998.

11. Miscellaneous Activities

A. Teaching Activities, Development Projects:

Attended the 23rd Annual Conference of the Human Anatomy and Physiology Meetings, Baltimore, MD, May 23-28, 2008
Attended the Teaching Professor Conference, Nashville, TN, May 19-22, 2006, 2007
Attended the Teaching Professor Conference, Schaumburg, IL, May 20-22, 2005
Attended the 19th Annual Human Anatomy and Physiology Society Meetings, St. Louis, MO, May 29-31
Attended the 18th Annual Human Anatomy and Physiology Society Meetings, Calgary, Canada, 2004
Teaching Portfolio Workshop, Peter Seldin, Brigham Young University, August, 2004
24th International Conference on Critical Thinking, Palo Alto, California, July 12-15, 2004
New Student Orientation "Habits of the Mind" August 2002
New Student Orientation "Enter to Learn" August 2001
Judge for Central Utah Science and Engineering Fair - BYU - March 2001
Update of lectures for Zoology 205 and 355 - some powerpoint - 2000-2001
Development of lecture presentations for Zoology 661, Neuro 205, Neuro 480 -2000
Development of lecture presentation for Zoology 102 - 2000
Judge for Central Utah Science and Engineering Fair - BYU - March 2000
Development of course material for Zoology 205 (Human Biology).
Walter Gong Summer Teaching Workshop, 1976
Development of Zoology 461 (Physiology and Drug Mechanisms) course and laboratory, 1976.
Development and Implementation of Zoology 361, Applied Human Physiology, for advanced Nursing and Food Science students. Participated in the development of Zoology 105 and 205.

B. Invited Lectures:

BYU, Keynote Address, 27th Annual Natural, Physical, and Mathematical Science Conference, October 14, 2000. "Sexual Differentiation".
Utah Pharmacy Association Annual Meeting, St. George, Utah, 1993
BYU, Sigma Xi Lecture, Paper of the Month, 1990
UCLA, Laboratory of Neuroendocrinology, Department of Anatomy, 1987.
BYU, Microbiology Graduate Seminar, 1987.
UCLA, Brain Research Institute Seminar, 1986.
BYU, Flea Market Lecture (Nobel Laureates), 1983.
BYU, Immunotoxicity of Foodborne and Airborne Pollutants Symposium, 1982.
BYU, Flea Market Lecture, 1978.
BYU, Fourth Annual Nursing Research Update Conference, 1978.
University of Utah, College of Pharmacy, 1973, 74, 75, 76, 77.

C. Juried, Invited and Commissioned Works - None

D. Performances, Productions and Interpretations - None

E. Editorships - None

F. Significant Intellectual Properties - None

G. Gifts use for Research - None

DUKE S. ROGERS

CURRICULUM VITAE

Address: Department of Biology
Brigham Young University
Provo, UT 84602
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Education:

B.S. in Wildlife and Fisheries Sciences, Cum Laude, Texas A&M University, 1976.
M.S. in Wildlife and Fisheries Sciences, Magna Cum Laude, Texas A&M University, 1979.
Ph.D. in Zoology, Summa Cum Laude, University of California, Berkeley, 1986.

Current Professional Positions:

Brigham Young University, Director, Monte L. Bean Life Science Museum (2016)
Brigham Young University, Professor of Biology (2006 to present)
Brigham Young University, Curator of Mammals, Monte L. Bean Life Science Museum (2006 to present)
Research Associate, Utah Museum of Natural History (2012 to present)

Previous Professional Positions:

Brigham Young University, Associate Department Chair (2008-2016)
Visiting Scientist, University of Texas Medical Branch, Galveston (2009-2010).
Brigham Young University, Associate Director, M.L. Bean Life Science Museum (2003-2006).
Brigham Young University, Associate Professor of Integrative Biology (2001-2006).
Brigham Young University, Associate Professor of Zoology (1995-2001).
Brigham Young University, Associate Curator of Mammals (1995-2006).
Brigham Young University, Assistant Professor of Zoology (1989-1995).
Brigham Young University, Assistant Curator of Mammals (1993-1995).
Texas A&M University, Dept. of Veterinary Pathology, Research Associate in Molecular Genetics (1987-1989).
Texas A&M University, Dept. of Biology, Visiting Assistant Professor (1984-1987).
University of California, Berkeley, Museum of Vertebrate Zoology, Staff Research Associate (1983-1984).
Texas A&M University, Visiting Instructor, Dept. of Wildlife and Fisheries Sciences (1984).
University of California, Berkeley, Teaching Assistant, Dept. of Zoology (1980-1981).

Previous Professional Positions (Continued):

University of California, Berkeley, Research Assistant, Museum of Vertebrate Zoology, (1980-1982).
University of California, Berkeley, Museum of Vertebrate Zoology, Curatorial Assistant (1979-1980).
Texas A&M University, Research Assistant, Texas Cooperative Wildlife Collection (1976-1978).
Texas A&M University, Teaching Assistant, Department of Wildlife and Fisheries Sciences (1977-1979).

Honors, Awards, Fellowships:

Outstanding Faculty Curator, Monte L. Bean Life Science Museum (2007-2008).- first year this award was established
John A. Widtsoe Fellowship, Brigham Young University (2006-2008).
College of Biology and Agriculture Professorship, Brigham Young University (2005-2006).
Outstanding Professor in Zoology, Brigham Young University (1991-1992).
Student Honor Society, University of California, Berkeley (1981-1983).
A. Brazier Howell Award from the American Society of Mammalogists (1983).
Albert R. and Alma Shadle Fellowship in Mammalogy, American Society of Mammalogists (1983).

Society Affiliations:

American Society of Mammalogists, Mexican Society of Mammalogists, Society of Systematic Biology, Southwestern Association of Naturalists, and Texas Society of Mammalogists

Teaching Experience:

Texas A&M University:

Introductory Biology, Biology (Biol) 113; Human Physiology; Biol. 220; Comparative Animal Physiology; Biol. 388; Seminar in Biology, Evolution and Cytogenetics, Biol. 481; Natural History of the Vertebrates, Wildlife and Fisheries Sciences (Wildlife) 302; Vertebrate Cytogenetics, (Wildlife) 611.

Brigham Young University:

Undergraduate Courses: Non-majors introductory Biology (Biol. 100), Coordinator for Introductory Biology (Biol. 130); Introductory Zoology (Zool.) 101; Animal Diversity, Zoology (Zool.) 204; Evolutionary Biology, Biol. 420-lecture and Biol. 421-lab; Undergraduate Research, Bio 449R; Mammalogy, Bio 447.
Graduate Courses: Molecular Evolution, Zool. 605; Graduate Seminar in Systematics and Ecology, Zool. 696R; Advanced Topics in Evolution and Systematics, Biol. 549; Masters Thesis Research, Bio 699R; Dissertation Research, Bio 799R).

Professional Activities:

Reviewer for the *American Journal of Tropical Medicine and Hygiene*, *American Midland Naturalist*, *American Museum Novitates*, *Australian Journal of Zoology*, *Canadian Journal of Zoology*, *Evolution*, *Great Basin Naturalist*, *Heredity*, *Integrative Zoology*, *Journal of Archaeological Science*, *Journal of Biogeography*, *Journal of Mammalogy*, *Mammalian Genome*, *Molecular Phylogenetics and Evolution*, *Occasional Papers, Texas Tech University*, *Proceedings of the Biological Society of Washington*, *Southwestern Naturalist*, *Systematic Zoology and Systematic Biology*, *Vector-Borne and Zoonotic Diseases*, and *Western North American Naturalist*.

Reviewer for NIH genetics panel, NSF Systematic Biology panel, NSF Foreign Travel Program, NSF Ecology Program, NSF Division of Biological Infrastructure, U.S. Department of Energy, and the Scholarly Study Program, Smithsonian Institution.

Appointed to the American Society of Mammalogists Membership Committee (1984-1986 and 2009-2013), the C. Hart Merriam Award Committee (1986-1990), the Grants-in-Aid Committee (1990-1996), the Editorial Committee, (1994-1998 and 2014-2016), the Honorarium Committee, American Society of Mammalogists (1996-1998), Chair of the Honorarium Committee, American Society of Mammalogists (1997-1998), the Systematic Collections Committee (1998 to present).

Appointed to the Department of Zoology Graduate Seminar and Curriculum Committee (1990), Molecular Geneticist Search Committee (1992), Population Geneticist Search Committee (1994-1995), Systematic Entomology Search Committee (1995), Professional Development Committee (1990-1995), Chair, Professional Development Committee (1996-1998), Chair, Strengthening the Students Committee (1996-1998), the Executive Committee (1998-1999), the Curriculum Committee (1999-2000), and Chair, Physiologist Search Committee (2000-2001).

Appointed to the Department of Integrative Biology Curriculum Committee (2001-2003), Mentoring Committee, Todd Robinson (2002),

Appointed to the Department of Biology, Chair, Mentoring Committee for David McClellan (2001-2007), Mentoring Committee, Shawn Clark (2005-2008), Member, Biological Science Educator Search Committee (2002), Chair Professional Development Committee (2006-2009 and 2014-2015), and Assistant Department Chair (2008-2016).

Appointed to the College of Biology and Agriculture Development Committee for Undergraduate and Graduate Programs in Conservation Biology (1991-2001), Professional Development Committee (1996-1998). Advisory Board for the *Great Basin Naturalist* (1993-2005), Freshman Biology Review Committee (1998-1999), Professional Advisement Office Review Committee (2002), the Research Committee (2003-2007), and the Rank and Status Committee (2010-2014).

Appointed to the *Peromyscus* Stock Center Committee sponsored by the National Science Foundation (1989, 1991-1997, 2000-2007).

Appointed to the Science Advisory Committee, Salt Lake Community College (1997-2001).

Appointed to Brigham Young University's Institutional Animal Care and Use Committee (1998-2000) and the Rank and Status Committee (2015-2016).

Professional Activities (Continued):

Appointed Curatorial Advisor to the Director, M. L. Bean Museum, Brigham Young University (2002).

Appointed member of the Committee for the Standardization of Chromosomes of *Peromyscus* (1988-1993).

Appointed Associate Director, M. L. Bean Life Science Museum, Brigham Young University (2003-2006).

Appointed to the Executive Committee, M. L. Bean Life Science Museum, Brigham Young University (2012-2016).

Evaluation of tenure for Stuart C. Calhoun, Department of Biology, State University of New York, Buffalo (1996), James Derr, Department of Veterinary Pathology, Texas A&M University (1998), Robert D. Bradley, Department of Biology, Texas Tech University (1999), and Robert P. Anderson, Department of Biology, City College of New York (2007).

Elected to the Board of Governors (1991-1994 term) of the Southwestern Association of Naturalists.

Associate Editor for *Mammalian Species*, American Society of Mammalogists (1994-1997).

Associate Editor for the *Journal of Mammalogy* (2014-present)

Current Grants and Contracts:

Division of Natural Resources, \$10,000, “Genetics of Utah Shrews”. September 2015-September 2016.

Previous Grants:

National Science Foundation, DDIG proposal DEB-1311298, \$19,125, entitled “Evolution of a Mesoamerican rodent clade: phylogenetics and testing biogeographic hypotheses”. May 2013-April 2016.

Department of the Army, \$750,000.00, “Sensitive species inventory and management on Dugway Proving Ground” August 2010 – August 2015 (R. Larsen PI, B. McMillan and D. S. Rogers Co-PIs).

National Science Foundation, DDIG proposal DEB-1115208, \$12,690, entitled “Integrating coalescent into the hypothesis testing of Neotropical diversification: Spiny-rats (Echimyidae: *Proechimys*)”. May 2011-April 2014.

Mentoring Environment Grant, Brigham Young University, \$20,000, proposal entitled “Rodents as evolutionary models: disease vectors, phylogeny and Phylogeography” (continuation). January 2011 - December 2011.

National Science Foundation, DBI-0139501, \$50,777, proposal entitled “Curation, data basing and integration of the orphaned Illinois mammal collection”; collaborative proposal with PI’s Joseph Cook, University of New Mexico and Lawrence Heaney, Field Museum of Natural History with separate budgets. March 2008 – December 2010.

Previous Grants (Continued):

- Mentoring Environment Grant, Brigham Young University, \$19,200, proposal entitled "Rodents as evolutionary models: disease vectors, phylogeny and phylogeography. February 2008 – February 2009.
- Roger and Victoria Sant Endowment, Brigham Young University, \$8,980, proposal entitled "Molecular systematics of Mexican spiny pocket mice: an evaluation of specimens from type localities."
- John A. Widtsoe Fellowship, Brigham Young University, \$23,600, proposal entitled "Molecular phylogeny reconstruction of the rodent genus *Mastomys*, a Lassa fever vector", September 2006-August 2008.
- Mentoring Environment Grant, Brigham Young University, \$15,348, proposal entitled "Mammalian biodiversity: phylogeny and disease", May 2006-May 2007.
- National Science Foundation, DBI-0139501, \$225,000, proposal entitled "REU Site in Systematics and Bioinformatics at Brigham Young University", September 2002-December 2006. (PI, with CoPI's Leigh Johnson and David McClellan).
- Mentoring Environment Grant, Brigham Young University, \$13,040, proposal entitled "Mammalian Biodiversity in Mexico", May 2005-May 2006.
- College of Biology and Agriculture, Brigham Young University, \$15,000, supplement to National Science Foundation REU Grant, May 2005-September 2005.
- College of Biology and Agriculture, Brigham Young University, \$15,000, supplement to National Science Foundation REU Grant, May 2004-September 2004.
- College of Biology and Agriculture, Brigham Young University, \$15,000, supplement to National Science Foundation REU Grant, May 2003-September 2003.
- David M. Kennedy Center for International Studies (\$1,350), grant entitled: Genealogical relationships among Subtropical and Tropical spiny pocket mice (Subfamily Heteromyinae", March-October 2002.
- Bureau of Land Management, \$50,000, grant entitled "Studies of the mammals of the Grand Staircase-Escalante National Monument (GSENM), June 1999-May 2001 (with J. T. Flinders).
- Utah Division of Oil, Gas and Mining, \$35,580, grant entitled "Bat population monitoring of abandoned mines in Central Utah", April 1999-September 1999.
- Environmental Science and Research Foundation, \$5,494, grant entitled "Population and Molecular Ecology of Townsend's' Big-eared Bats in Southern Idaho", November 1998-April 1999.
- Utah Bureau of Reclamation and Mitigation (\$38,891), grant entitled "Small Mammal Habitat Preferences along the Provo River", July 1998-October 2001.
- Bureau of Land Management (\$14,998), grant entitled: "Mammals of the Grand Staircase-Escalante National Monument (GSENM)): A literature review and museum survey", June-September 1998 (with J. T. Flinders).
- Environmental Science and Research Foundation, \$5,496, grant entitled "Status of Threatened or Endangered Species of Small Mammals at selected Sites on the Idaho National Engineering Laboratory", September 1996-December 1996.
- Department of Energy and the Environmental Science and Research Foundation, \$96,070, grant entitled "Habitat Use by Summer Populations of Bats in Sagebrush-Steppe", June 1996-May 1999.

Previous Grants (Continued):

- Comisión Nacional Para el Conocimiento y Uso de la Biodiversidad (CONABIO), \$67,718 (pesos) or \$7,500. Proposal entitled "Sistemática y biogeografía del género *Reithrodontomys* (Rodentia: Muridae); with Elizabeth Arellano and Fernando A. Cervantes, May 1996-May 1999.
- Utah Division of Wildlife Resources and Bureau of Land Management, \$19,000, contract entitled "Book Cliffs Vertebrate Survey", May 1996-April 1997 (with Jack W. Sites, Jr.).
- U.S. Forest Service, \$35,722, contract entitled "Bat Survey and Critical Habitat", May 1996-April 1997.
- Bureau of Land Management, \$10,138, contract entitled "Spotted Bat Survey (*Euderma maculatum*) in Southern Utah", September 1995-June 1996.
- SWCA Environmental Consultants, \$720, Contract entitled "Survey of Habitat and bat diversity in central Nevada", September 1995-June 1996.
- Utah Wildlife Resources, \$2,000, Contract entitled "Habitat preference for Townsend's Big-eared bat", August 1995-July 1996.
- U.S. Forest Service, \$27,522, contract entitled "Bat Survey and Critical Habitat", May 1995-April 1996.
- Utah Division of Wildlife Resources and Bureau of Land Management, \$14,500, contract entitled "Book Cliffs Vertebrate Survey", May 1995-April 1996 (with Jack W. Sites, Jr.).
- U.S. Forest Service, \$15,000, contract entitled "Survey of Mines and Habitat Preferences of the Western Big-Eared Bat (*Plecotus townsendii*)", May 1994-April 1995.
- Utah Division of Wildlife Resources, \$79,794, grant entitled "June Sucker Taxonomy - DNA and Protein Investigations", November 1992-October 1993. PI's M. J. Kaliszewski (deceased) and S. Seyoum.
- National Institutes of Health and National Institute of General Medical Services, Grant Number 1 R15 GM46016-01 (\$100,707), entitled "Molecular and Somatic Cell Mapping of Deer Mouse Genes", May 1991-December 1994. Collaborators were James E. Womack and Wallace D. Dawson.
- National Academy of Sciences Grant (\$2,080), entitled: "Evolutionary Relationships and Speciation Potential Within the Subfamily Heteromyinae (Genera *Heteromys* and *Liomys*)", January 1982-December 1983.
- National Science Foundation Doctoral Dissertation Improvement Grant, DEB-82-02270 (\$7,000), entitled: "Evolutionary Relationships Within the Subfamily Heteromyinae (Genera *Heteromys* and *Liomys*)", June 1981-June 1984.
- Grants awarded by the Tinker Foundation of the Center for Latin American Studies, 1980 (\$900), and 1981 (\$450).
- Louise M. Kellogg Grant-In-Aid (1980, \$650) and Martin Fund Grant-In-Aid (1981, \$275), Museum of Vertebrate Zoology, University of California.
- Theodore Roosevelt Memorial Fund of the American Museum of Natural History Grant, 1979 (\$500).

University Honors Undergraduates:

- Christopher C. Funk. 2005. (Committee Chair). A molecular phylogenetic analysis of the genus *Habromys* (Rodentia: Muridae) (Honors Thesis).
- Victoria Vance. 2002. (Committee Chair). Phylogenetic relationships among Spiny pocket mice (genus *Liomys*) in Latin America (Honors Thesis).
- Daniel D. Ririe. 1995. (Committee Chair). Development of the genetic map of the deer mouse, *Peromyscus maniculatus* using RAPD markers (Honors Thesis).
- Danielle D. Montague. 1992. (Committee Member). Mechanisms for the evolution of taxonomic diversity: a hierarchical approach (Honors Thesis).
- Kim Christiansen. 1991. (Committee Member). Development of electrophoretic techniques for phylogenetic reconstruction, population structure, and sex determination analysis of Ascid mites (Honors Thesis).

Current Graduate Students:

- Joanna Bateman (Committee Chair), Master's Thesis topic to be determined.
- Perry Wood (Committee Member), Ph.D. Dissertation topic: Comparative phylogenetics in Southeast Asia.

Previous Graduate Students:

- Derek Tucker (Committee Member), Ph.D. Dissertation topic: Squamate evolution in seasonally dry forests in South America.
- Luke Welton (Committee Member), graduated December 2015. Ph.D. Dissertation topic: Varanid phylogenetics in Southeast Asia.
- Holly Brabazon (Committee Member), graduated August 2015. Master's Thesis topic: Phylogeography and conservation genetics of *Cycladenia humilis* inferred from low-copy nuclear DNA sequence variation.
- Nicté Ordóñez-Garza (Committee Member), graduated December 2015. Ph.D. Dissertation topic: Phylogenetics of Middle American deer mice (Ph.D. program at Texas Tech University).
- Ana Laura Almendra (Committee Chair), graduated August 2015. Ph.D. Dissertation topic: Evolutionary relationships among *Handleyomys* and closely related genera.
- Tatiana Caldera (Committee Member), graduated June 2015. Master's Thesis topic: Taxonomic revision of the *Heteromys anonalus* species group using molecular Markers.
- Justin Bagley (Committee Member), graduated August 2014. Ph.D. Dissertation topic: Evolution of *Poecilia* in Middle America
- Brittany Bush (Committee Chair), graduated December 2013. Master's thesis topic: The morphological basis of the island effect on three species of rodents endemic to Cozumel Island, Mexico.
- Rafael Leite (Committee Chair), graduated August 2013. Ph.D. Dissertation topic: Evolution of Echymid rodents with emphasis on the genus *Proechimys*.

Previous Graduate Students (Continued):

- Melina C. Williamson (Committee Chair), graduated August 2009. Masters Thesis topic: Basal clades within the subfamily Heteromyinae and phylogenetic relationships among members of the genus *Heteromys*.
- Daniel K. Hardy (Committee Chair), graduated August 2007. Masters Thesis topic: Molecular population genetics of Sumichrast's harvest mouse (*Reithrodontomys sumichrasti*) in Mexico and molecular phylogenetics of the *Peromyscus aztecus* species group..
- Victoria L. Vance (Committee Chair), graduated May 2006. Masters Thesis: Phylogenetics relationships and species limits within the *Liomys pictus* complex (Rodentia: Heteromyinae) based on mitochondrial and nuclear DNA sequence data.
- Donna Barnes (Committee Member), graduated August 2005. Masters Thesis topic: *Navarretia* (Polemoniaceae).
- Dean Leavitt (Committee member), graduated December 2005. Masters Thesis topic: Molecular phylogeography of *Xantusia*.
- Melinda González (Committee Chair), graduated December 2004. Masters Thesis topic: Evolutionary relationships among Spiny pocket mice (genus *Heteromys*) based on mitochondrial and nuclear DNA markers.
- Jonathan Marshall (Committee Member), graduated August 2004. Ph.D. dissertation topic: Tests of speciation mechanisms among lizards of the genus *Sceloporus*.
- Nathan Jackson (Committee Member), graduated August 2004. Masters Thesis topic: Phylogeographic patterns in the salamander genus *Desmognathus*.
- Allison Whiting (Committee member), graduated December 2003. Ph.D. topic: Higher level phylogenetic relationships among lizards and relationships among lizards in the genera *Scelotes* and *Mabuya*.
- Quinn R. Shurtliff (Committee Chair), graduated August 2003. Masters Thesis topic: Mating system of the canyon mouse (*Peromyscus crinitus*) determined using microsatellite markers.
- Jackee L. Alston (Committee Co-Chair with J. L. Flinders), graduated May 2003. Masters Thesis topic: The mammals of the Grand Staircase-Escalante National Monument, Utah: Study 1: A biotic survey and habitat assessment of small mammals. Study 2: Functional factors of habitat selection and the population dynamics of translocated desert bighorn sheep (*Ovis Canadensis nelsoni*).
- Brent R. Coleman (Committee Chair), graduated December 2002. Masters Thesis topic: Habitat utilization patterns by bats within the Provo River corridor.
- Elizabeth Arellano, (Committee Chair), graduated May 1999. Ph.D. dissertation topic: Molecular phylogeny of the genus *Reithrodontomys* (Rodentia: Muridae).
- Francisco X. González (Committee Chair), graduated December 1998. Ph.D. Dissertation topic: Molecular phylogenetic relationships certain among North American hares (genus *Lepus*)
- Richard E. Sherwin (Committee Chair), graduated August 1998. Masters Thesis topic: Habitat and roosting affinities of Townsend's big-eared bat (*Corynorhinus townsendii*) in northern Utah.

Previous Graduate Students (Continued):

- Shauna Haymond (Committee Chair), graduated August 1998. Masters Thesis topic: Summer habitat use by three vespertilionid bats in sagebrush-steppe in southeastern Idaho.
- Daniel J. Harris (Committee Chair), graduated August 1997. Masters Thesis topic: Species limits and phylogenetic relationships among populations of *Peromyscus furvus*.
- Nelson Jorge da Silva, Jr. (Committee Member), graduated August 1995. Ph.D. Dissertation topic: Molecular phylogenetic relationships among Neotropical coral snakes.
- Elizabeth Arellano (Committee Chair), graduated December 1994. Masters Thesis topic: Allozymic relationships among six species of Harvest Mice (subgenus *Aporodon*).
- David A. McClellan (Committee Chair), graduated August 1994. Masters Thesis topic: Segregation of random amplified polymorphic DNA (RAPD) and microsatellite markers in backcross progeny of *Peromyscus*.
- Heidi Johnson (Committee Member), graduated August 1994. Masters Thesis topic: Genetic polymorphisms among selected populations of the black in Utah and the Western United States.
- Daniel Mink (Committee Member), graduated August 1993. Masters Thesis topic: Species limits, phylogenetic relationships, and origins of viviparity in the *scalaris* complex of the lizard genus *Sceloporus* (Iguanidae: Sauria).
- Elizabeth Arévalo (Committee Member), graduated December 1992. Dissertation topic: Population structure and phylogenetics of the *Sceloporus grammicus* complex (Phrynosomatidae) in Central México.
- Sherilyn Grover (Committee Member), graduated August 1992. Masters Thesis topic: Vicariant events in the mottled sculpin, *Cottus bairdi* (Cottidae), from the Bonneville, Snake, and Colorado drainage basins: electrophoretic analysis.

Long-Term Academic Leaves:

- University of Texas Medical Branch, Galveston, TX (August 2009-June 2010).
Museum of Vertebrate Zoology, University of California, Berkeley, CA (January-May 1997).

Short-Term Academic Leave:

- Department of Biology, Washington University, St. Louis, MO (January – February 1991).

Field Experience:

- Foreign: Brazil, 14 weeks (1992-1995); Colombia, 1 week (1994); Costa Rica, 7 weeks (1982-1983); México, 67 weeks (1976-2009); Panamá, 3 weeks (1983); Sierra Leone: 2 weeks (2009).

Field Experience (continued):

Domestic: California, 15 weeks (1979-1984); Eastern U.S., 8 weeks (1988-2005); Idaho, 3 weeks (1995-1999); Nevada, 16 weeks, (1981, 2007-2016); New York, 2 weeks (1991); Texas, 55 weeks (1975-2010); Utah: 55 weeks (1989-2016); Wyoming: 2 weeks (1991).

Invited Seminars:

- 2011. Department of Integrative Biology, University of Denver, Denver, Colorado.
- 2010. Department of Pathology, University of Texas Medical Branch, Galveston, Texas.
- 2010. Tulane School of Public Health and Tropical Medicine, New Orleans, Louisiana.
- 2010. Department of Biology, Angelo State University, San Angelo, Texas
- 2007. Department of Zoology, Oklahoma State University, Stillwater, Oklahoma.
- 2000. Universidad Autónoma del estado de Morelos, Cuernavaca, Morelos, México.
- 1999. Universidad Autónoma del estado de Morelos, Cuernavaca, Morelos, México.
- 1995. Instituto de Biología, Departamento de Zoología, Universidad Nacional Autónoma de México, México City, México.
- 1995. Department of Botany and Range Science, Brigham Young University, Provo, Utah.
- 1994. Department of Biological Sciences, University of South Carolina, Columbia, South Carolina.
- 1993. Mammalogy Department, the American Museum of Natural History, New York, New York.
- 1993. Instituto de Biología, Departamento de Zoología, Universidad Nacional Autónoma de Mexico, Mexico City, México.
- 1992. Universidade Federal do Goias, Goiania, Brazil.
- 1992. Universidade Catolica do Goias, Goiania, Brazil.
- 1990. Royal Ontario Museum, Department of Mammalogy, Toronto, Ontario, Canada.
- 1990. Smithsonian Institution, National Zoological Park, Washington, D.C.
- 1990. Instituto de Biología, Departamento de Zoología, Universidad Nacional Autónoma de México, Mexico City, México.
- 1989. Virginia Museum of Natural History and Virginia Polytechnic University, Blacksburg, Virginia.
- 1989. Brigham Young University, Department of Zoology, Provo, Utah.
- 1988. University of California at Berkeley, Berkeley, California.
- 1987. Field Museum of Natural History, Chicago, Illinois.
- 1985. Baylor University, Department of Biology, Waco, Texas.
- 1984. Los Angeles County Museum of Natural History, Los Angeles, California.
- 1983. Harvard University, Department of Organismic and Evolutionary Biology, Cambridge, Massachusetts.
- 1982. Universidad de Costa Rica, Centro de Investigacion de Biología Celular y Molecular, San José, Costa Rica.

Papers Presented at Professional Meetings (previous 5 years): * = graduate student coauthor, ** = undergraduate student coauthor):

2014. Leite*, R. N., F. P. Werneck, M. N. da Silva, and D. S. Rogers. Phylogeography of *Proechimys roberti* (Rodentia, Echymidae): implications for the evolutionary history of southeastern Amazonia and Cerrado ecotone. Annual Meeting of the American Society of Mammalogists, 6-10 June, Oklahoma City, Oklahoma.
2013. Leite*, R. N., F. P. Werneck, M. N. da Silva, and D. S. Rogers. Phylogeography of *Proechimys roberti* (Rodentia, Echymidae): implications for the evolutionary history of southeastern Amazonia and Cerrado ecotone. Annual Meeting of the Society for the Study of Evolution, 21-26 June, Snowbird, Utah.
2012. Leite*, R. N., and D. S. Rogers. Filogeografia de pequenos mamíferos: avanços e desafios para o Brasil do século 21. 6º Congresso Brasileiro de Mastozoologia, 25-29 June, Corumbá, Mato Grosso do Sul, Brasil (presentation).
2012. Almendra*, A. L., D. S. Rogers, F. X. González-Cózatl, and M. D. Engstrom. Molecular phylogenetics of the *Handleyomys alfaroi* group (Rodentia: Sigmodontinae): Inferences from multiple loci DNA sequences. 92nd meeting of the American Society of Mammalogists, 22 – 26 June, Reno, Nevada. Bradley, and Charles F. Fulhorst). The James Steele Conference on Diseases in Nature Transmissible to Man, Austin, Texas.
2010. Taxonomic status and distribution of the *Peromyscus boylii* group (Rodentia: Cricetidae). (with Nicté Ordóñez-Garza*, Ryan Duplechin*, Elizabeth Arellano, Francisco. X. González-Cózatl, C. William Kilpatrick, and Robert D. Bradley). 26th Annual Meeting, Texas Society of Mammalogists.

Manuscript Accepted

Cook, J. A., S. Greiman, S. Agosta, R. P. Anderson, B. S. Arbogast, R. J. Baker, W. Boeger, R. D. Bradley, D. R. Brooks, R. Cole, J. R. Demboski, A. P. Dobson, J. L. Dunnum, R. P. Eckerlin, J. Esselstyn, K. Galbreath, J. Hawdon, H. Hoekstra, S. Kutz, J. Light, L. Olson, B. D. Patterson, J. L. Patton, A. J. Phillips, E. A. Rickart, D. S. Rogers, M. Siddall, V. Tkach, and E. P. Hoberg. Transformational principles for NEON sampling of Mammalian parasites and pathogens. A response to Springer and colleagues. Bioscience.

Manuscript Submitted

- Silva, C. R., C. C. Ribas, M. N. da Silva, R. N. Leite, D. S. Rogers, F. Catzefflis, and B. de Thoisy. The role of the Pleistocene landscape evolution in the genetic variability, distribution and demography of *Proechimys guyannensis* and *P. cuvieri* (Rodentia: Echymidae) in northeastern Amazonia. Biological Journal of the Linnean Society (submitted)
- Bradley, R. C., N. Ordóñez-Garza, G. Ceballos Gonzalez, D. S. Rogers, and D. J. Schmidly. A new species in the *Peromyscus boylii* species group (Cricetidae: Neotominae) from Michoacan, Mexico. Journal of Mammalogy.

Publications (* = graduate student coauthor, ** = undergraduate student coauthor):

Book Chapters

- Arellano, E., J. A. Guerrero**, and D. S. Rogers. 2012. Variación morfológica y alometría del crecimiento de *Reithrodontomys mexicanus* (Rodentia: Muridae) de Oaxaca, México (F. A. Cervantes, ed.). In *Estudios sobre la Biología de Roedores Silvestres Mexicanos*, University, Instituto de Biología, UNAM, y Universidad Autónoma Metropolitana, Iztapalapa.
- Almendra, A. L.*, and D. S. Rogers. 2012. Biogeography of Central American mammals: Patterns and Processes (B. D. Patterson and L. P. Costa, eds.). In *Bones, Clones and Biomes: The History and Geography of Recent Neotropical Mammals*. University of Chicago Press.
- Rogers, D. S., E. Arellano, F. X. González-Cózatl, D. K. Hardy**, J. D. Hanson, and N. Lewis-Rogers. 2009. Molecular phylogenetics of *Oligoryzomys fulvescens* based on cytochrome *b* gene sequences, with comments on the evolution of the genus *Oligoryzomys*. In *60 años de la Colección Nacional de Mamíferos del Instituto de Biología, UNAM. Aportaciones al Conocimiento y Conservación de los Mamíferos Mexicanos*. Universidad Autónoma de México, México, D. F.
- González-Cózatl, F. X., D. S. Rogers and E. Arellano. 2009. Diversidad críptica en la CNMA: descubriendo nuevas especies de roedores mexicanos. In *60 años de la Colección Nacional de Mamíferos del Instituto de Biología, UNAM. Aportaciones al Conocimiento y Conservación de los Mamíferos Mexicanos*. Universidad Autónoma de México, México, D. F.
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Education:

BS, Zoology, University of Utah, 1965

MS, Genetics, University of Utah, 1967

PhD, Human Genetics, McGill University, Montreal, Canada, 1970

Post Doctoral Training, University of Colorado at Boulder, 1972

Positions and Employment:

Assistant Professor, Department of Zoology, Brigham Young University, 1972-1975

Associate Professor, Department of Zoology, Brigham Young University, 1975-1981

Professor, Department of Zoology, Brigham Young University, 1981-2002

Professor, Department of Physiology and Developmental Biology, 2002-2011

Visiting Research Fellow, Department of Pediatrics, University of Chicago, Dr. Albert Dorfman, Sponsor, 1976-77

Visiting Research Fellow, NIH, Laboratory for Developmental Biology and Anomalies, Drs. George Martin and Ken Brown, Sponsors, 1987-1988

Visiting Research Fellow, Department of Pharmacology, University of Washington, Dr. Mont Juchau, Sponsor, 1987-1988

Visiting Research Fellow, Department of Orthopedics and Sports Medicine, University of Washington, Dr. David Eyre, Sponsor, 2001-2002

Other Experience and Professional Memberships

Predoctoral Fellowship, NIH GM421201, McGill University, Dr. F. Clark Fraser, Sponsor, 1968-1970

Postdoctoral Fellowship, Pharmaceutical Manuf. Assoc. Found., University of Colorado, Dr. Meredith Runner, Sponsor, 1970-1972

American Men and Women of Science, 1976

Secretary, Teratology Society, 1997-2000

Teratology Society, 1969-2008

American Society for Matrix Biology, 1999-2010

Osteoarthritis Research Society International, 2000-

American Society of Dental Research, 2011-

Honors

Predoctoral Training Grant Awardee, NIH GM00837, McGill University, Dr. F. Clarke Fraser, Sponsor
Sigma Xi Faculty Research Award, 1974, 1989, 1996

March of Dimes Service Award, 1976

Faculty Achievement Award, Department of Zoology, Brigham Young University, 1988

Faculty Creative Achievement Award, College of Biology and Agriculture, Brigham Young University, 1990

Alcuin Fellowship in General Education, Brigham Young University, 2000-2003

Karl G. Maeser General Education Professorship, Brigham Young University, 2004-2007

Faculty Achievement Award, Department of Physiology and Developmental Biology, Brigham Young University, 2007.

Teaching:

Human Embryology, Elementary Human Anatomy, Introduction to Human Biology, Developmental Biology, Human Heredity and Reproduction, Cell Biology, Advanced Topics in Teratology, Teratology Techniques, Honors Introductory Zoology, Elementary Human Anatomy

Research Support:

“Common Mechanisms of Osteoarthritis in Three Mouse Models”

Principal Investigator: Robert E. Seegmiller, Ph.D.

Funding Source: The National Institutes of Health/NIAMS

Type: AREA grant, 1R15 AR 056861, 06/01/09-05/31/11, \$150,000 direct cost

The goal of this project is to compare molecular aspects of the progression of osteoarthritis in three genetic models, two with Col2a1 mutations, and one with a Col11a1 mutation. Specifically we will determine cellular and subcellular changes in articular cartilage in these mutants, identify patterns of articular cartilage degeneration in both knee and TMJ that are common to these three different mouse models during the early phases of OA using biomarkers of cartilage degeneration and chondrocyte apoptosis, and determine whether these mutations cause ER stress that is severe enough to trigger the unfolded protein response (UPR) in developing articular cartilage, and whether that UPR activates inflammation or apoptosis pathways. Meeting these aims will pave the way for future development of therapies for OA.

“Pathogenesis of Osteoarthritis in Col2a1 Mutant Mice.”

Principal Investigator: Robert E. Seegmiller, Ph.D.

Funding Source: The National Institutes of Health

Type: AREA grant, 1R15 AR 47568-01, 8/1/02-7/31/04, \$100,000 direct cost

The specific aims of this project are to ascertain the histological changes indicative of osteoarthritis and to determine the timing and sequence in which they occur; to identify the ultrastructural changes in chondrocytes and the extracellular matrix in relation to degenerate and structurally intact regions of

articular cartilage; and to determine, through immunohistochemical analysis, the presence and localization of degraded type II collagen specific metalloproteinases.

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PROFESSIONAL DOSSIER

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Academic Record:

<u>Institution</u>	<u>Degree</u>	<u>Major</u>	<u>Minor</u>	<u>Attended</u>
Weber State College	B.A.	Zoology	Chemistry	1968-72
Brigham Young University	M.S.	Zoology	Statistics	1972-74
University of Minnesota	Ph.D.	Fisheries	Statistics and Ecology	1974-78

Appointments:

Brigham Young University, Professor of Biology, 2006 - present.
 Brigham Young University, Professor of Integrative Biology, 2002 - 2006.
 Brigham Young University, Professor of Zoology, 1996 - 2002.
 Brigham Young University, Associate Professor of Zoology, 1985-1996.
 Brigham Young University, Assistant Professor of Zoology, 1978-1985.

Professional Organizations and Honor Societies:

2003-present International Biogeography Society
 1990-present American Fisheries Society
 1981-present Desert Fishes Council
 1975-present North American Benthological Society
 1974-present Sigma Xi, Scientific Research Society of North America
 1973-present American Association for the Advancement of Science
 1973-present Societas Internationalis Limnologiae
 1975-2002 Ecological Society of America
 1975-2000 American Society of Limnology and Oceanography

Committee and other professional citizenship activities:

Department

2012-present Chair, Department of Biology
 2006-2012 Associate Chair, Department of Biology, Brigham Young University
 2010-2012 Member, Curriculum Committee, Department of Biology, Brigham Young University
 2006-2010 Chair, Curriculum Committee, Department of Biology, Brigham Young University
 1978-present Manager, Freshwater Aquaria, Department of Zoology, College of Biological and Agricultural Sciences, Brigham Young University
 2001-2006 Member, Department Leadership Council, Department of Integrative Biology, Brigham Young University
 2001-2006 Chair, Department of Integrative Biology Curriculum Committee, Brigham Young University
 2001-2006 Chair, Mentoring Committee for Russ Rader, Department of Integrative Biology, Brigham Young University
 2002-2003 Member, Ecologist search committee. Department of Integrative Biology, Brigham Young University

2001-2006 Member, Department Leadership Council, Department of Integrative Biology Curriculum Committee, Brigham Young University

2001-2006 Chair, Department of Integrative Biology Curriculum Committee, Brigham Young University

1999-2001 Chair, Seminar Committee, Department of Zoology, Brigham Young University

1999-2000 Member, Ecologist search committee. Department of Zoology, Brigham Young University

1997 Chair, Ecologist search committee. Department of Zoology, Brigham Young University

1997 Member, Department Teaching Retreat Transportation Committee, Department of Zoology

1996-1998 Member, Undergraduate Curriculum Committee, Department of Zoology, Brigham Young University

1994-1995 Member, Department Computer Committee, Department of Zoology, Brigham Young University

1993 Developed Conservation Biology - Ecology and Systematics undergraduate degree program, Department of Zoology, Brigham Young University

1991-1995 Member, Executive Committee, Department of Zoology, Brigham Young University

1991-1995 Coordinator, Division of Ecology and Systematics, Department of Zoology

1990-1995 Chair, Department Professional Development Committee, Department of Zoology, Brigham Young University

1990-1991 Member, Department Computer Committee, Department of Zoology, Brigham Young University

1989 Compiler, Department of Zoology Mission Statement, Brigham Young University

1987-1988 Chair, Department Professional Development Committee, Department of Zoology, Brigham Young University

1983-1995 Member, Department Professional Development Committee, Department of Zoology, Brigham Young University

1981-82 Member, Department Curriculum Review Committee, Department of Zoology, Brigham Young University

College

2006-2010 Member, Curriculum Council, College of Life Sciences, Brigham Young University.

2003-2015 Member, Board of Directors, Western North American Naturalist.

2000-present Chair, Roger Sant Endowment Committee, College of Biology and Agriculture, Brigham Young University.

1982-present Curator of Fishes. Monte L. Bean Life Science Museum, Brigham Young University.

2003-2004 Acting Associate Editor, Western North American Naturalist.

2003-2005 Chair, Subcommittee on Core Course Coordination, College of Biology and Agriculture, Brigham Young University.

2001-2004 Member, College of Biology and Agriculture Curriculum Council, College of Biology and Agriculture, Brigham Young University.

2000-2002 Member, Conservation Biology Committee, College of Biology and Agriculture, Brigham Young University.

2000 First floor manager for Widtsoe Building power disruption.

1995-2000 Chair, Conservation Biology Committee, College of Biology and Agriculture, Brigham Young University.

1994 Revised College of Biology and Agriculture Long-term leave policy, Brigham Young University.

1994 Initiated acquisition and installation of computer server and network setup for multimedia applications in the College of Biology and Agriculture, Brigham Young University.

1989 Revised College of Biology and Agriculture Professional Development funding guidelines, Brigham Young University.

1988-1998 Chair, College Professional Development Committee, College of Biological and Agricultural Sciences, Brigham Young University.

1987-1998 Member, College Professional Development Committee, College of Biological and Agricultural Sciences, Brigham Young University.

1983-88 Member, College Ecology Curriculum Committee, College of Biological and Agricultural Sciences, Brigham Young University

1981-82 Member, College Quantitative Biology, Review Committee, College of Biological and Agricultural Sciences, Brigham Young University.

1979-80 Member, College Professional Development Committee, College of Biological and Agricultural Sciences, Brigham Young University.

University

- 2010-2012 Member, Institutional Animal Care and Use Committee
2002-2006 Sponsoring Faculty, BYU Flyfishing Club
1982-1988 Member, Predental Committee, Brigham Young University.

State, Regional, National, and International

- 2013 Panel Member, Greenback trout genetics and meristics studies facilitated expert panel workshop. USF&WS, Lakewood, CO.
1990-present Bonneville Basin Conservation and Recovery Team Technical Advisor- Bonneville Cutthroat Trout.
1990-present Colorado Basin Conservation and Recovery Team Technical Advisor - Colorado River Cutthroat Trout.
1998-2000 Lahontan Cutthroat Trout Recovery Team Technical Advisor.
1995-2005 World Salmonid Research Institute Advisory Board
1976-77 Voting staff representative, Fisheries graduate students, Department of Entomology, Fisheries, and Wildlife, University of Minnesota.
1974-77 Representative, Council of Graduate Students, University of Minnesota.
1974-76 Member, Department of Entomology, Fisheries, and Wildlife Grievance Committee, University of Minnesota.
1971-72 Student representative, Zoology Department, Weber State College, Ogden, Utah.

Papers and Publications:

Chapters in books

- Shiozawa, D. K., R. P. Evans, P. Unmack, A. Johnson, and J. Mathis. 2011. Cutthroat trout phylogenetic relationships with an assessment of associations among several subspecies. In: Wild Trout X: conserving wild trout. Proceedings of a Symposium. Trout Unlimited. pp. 158-166.
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Publications in peer reviewed scholarly journals

- Unmack, P. J., D. A. Neely, M. A. Sandel, R. L. Mayden, and Dennis K. Shiozawa (in prep). Phylogeny and biogeography of North American freshwater scuplins (Teleostei: Cottidae).
- B.D. Pickett; S.M. Karlinsey; C.E. Penrod; M.J. Cormier; M.T.W Ebbert; D.K. Shiozawa; C.J. Whipple; P.G. Ridge 2016. SA-SSR: A Suffix Array-Based Algorithm for Exhaustive and Efficient SSR Discovery in Large Genetic Sequences. *Bioinformatics*. doi: 10.1093/bioinformatics/btw298
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- Schultheis, A. S., N. Davis, J. T. Page, A. M. Fenwick, J. E. Bond, and D. K. Shiozawa. 2014. Comparative transcriptomics allows for rapid development of population-level nuclear markers in *Hesperoperla pacifica* (Plecoptera:Perlidae). *Freshwater Science* 33: 364-373.
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- Houston D. D, D. B. Elzinga, P. J. Maughan, S. M. Smith, J. S. K. Kauwe, R. P. Evans, R. B. Stinger, and D. K. Shiozawa. 2012. Single nucleotide polymorphism discovery in cutthroat trout subspecies using genome reduction, barcoding, and 454 pyro-sequencing. *BMC Genomics* 3(724): doi:10.1186/1471-2164-13-724
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- Houston, D. D., R. P. Evans, and D. K. Shiozawa. 2012. Evaluating the genetic status of a Great Basin endemic minnow: the relict dace (*Relictus solitarius*). *Conservation Genetics* 13:727-742.
- Rasmussen, J. E. M. C. Belk, E. Habit, D. K. Shiozawa, R. D. Hepworth, and A. Anthony. 2011. Variation in size-at-age between native cutthroat and introduced brown trout in allopatry and sympatry: implications for competitive interaction. *Aquatic Biology* 13:285-292.
- Houston, D. D., D. K. Shiozawa, and B. R. Riddle. 2011. The roles of Neogene geology and late Pleistocene lake levels in shaping the genetic structure of the Lahontan reidside shiner *Richardsonius egregius* (Teleostei: Cyprinidae). *Biological Journal of the Linnean Society* 104:163-176.
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- Lee, D. J., R. Schoenberger, D. Shiozawa, X. Xu, P. Zahn. 2004. Contour matching for a fish recognition and migration monitoring system. *Proc. SPIE* 5606, Two- and Three-Dimensional Vision Systems for Inspection, Control, and Metrology II, 37 (December 16, 2004); doi:10.1117/12.571789
- Kauwe, J. S. K., D. K. Shiozawa, and R. P. Evans. 2004. Phylogeographic and nested clade analysis of the stonefly *Pteronarcys californica* (Plecoptera:Pteronarcyidae) in Western USA. *Journal of the North American Benthological Society* 23(4): 824-838.
- Collins, K. W. and D. K. Shiozawa. 2001. Exclusion experiments with backwater invertebrate communities of the Green River, Utah. *Western North American Naturalist* 62:149-158.
- Rundle, S. D., D. T. Bilton, and D. K. Shiozawa. 2000. Global and regional patterns in lotic meiofauna. *Freshwater Biology* 44:1-12.
- Jordan, S., D. K. Shiozawa, and J. M. Schmid-Araya. 1999. Benthic invertebrates of a large, sandy river system: The Green and Colorado Rivers of Canyonlands National Park, Utah. *Archiv für Hydrobiologie* 147:91-127.
- Walser, C. A., M. C. Belk, and D. K. Shiozawa. 1999. Habitat use of Leatherside Chub (*Gila copei*) in the presence of predatory brown trout (*Salmo trutta*). *Great Basin Naturalist* 59:272-277.
- Williams, R. N., R. P. Evans, and D. K. Shiozawa. 1997. Mitochondrial DNA diversity patterns of bull trout in the upper Columbia River basin. Pages 283-297 in Mackay, W. C., M. K. Brewin, and M. Monita, editors. Friends of the bull trout conference proceedings. Bull Trout Task Force (Alberta) c/o Trout Unlimited Canada, Calgary.
- Davidson, D. W., W. D. Newmark, J. W. Sites Jr., D. K. Shiozawa, E. A. Rickart, K.T. Harper, and R. B. Keiter. 1996. Selecting BLM wilderness areas to conserve Utah's biological diversity. *Great Basin Naturalist* 56:95-118.
- Williams, R. N., D. K. Shiozawa, J. E. Carter, and R. F. Leary. 1996. Genetic detection of putative hybridization between native and introduced rainbow trout populations of the upper Snake River. *Transactions American Fisheries Society* 125:387-401.
- Johnson, J. B., M. C. Belk, and D. K. Shiozawa. 1995. Age, growth, and reproduction of leatherside chub (*Gila copei*). *Great Basin Naturalist* 55:183-187.
- Wolz, E. R. and D. K. Shiozawa. 1995. Benthic macroinvertebrate communities of the Green River, at the Ouray National Wildlife Refuge, Uinta County, Utah. *Great Basin Naturalist* 55: 213-224.
- Proebstel, D. S., R. P. Evans, R. N. Williams, and D. K. Shiozawa. 1993. Preservation of non-frozen tissue samples from a salmonine fish *Brachymystax lenok* (Pallas) for DNA analysis. *Journal of Ichthyology* 2:9-17.
- Shiozawa, D. K., J. Kudo, R. P. Evans, S. R. Woodward and R. N. Williams. 1992. DNA extraction from preserved trout tissues. *Great Basin Naturalist* 52:29-34.
- Shiozawa, D. K. 1991. Microcrustacea from nine Minnesota streams. *Journal of the North American Benthological Society* 10:286-299.
- Westenfelder, C., F. M. Birch, R. C. Baranowski, M. J. Rosenfeld, D. K. Shiozawa and C. Kablitz. 1988. Atrial natriuretic factor (ANF) and salt adaptation in teleost fish (*Gila atraria*). *American Journal of Physiology*. 255:F1281-F1286.
- Shiozawa, D. K. 1986. The seasonal community structure and drift of microcrustaceans in Valley Creek, Minnesota. *Canadian Journal of Zoology* 64: 1655-1664.
- Barnes, J. R. and D. K. Shiozawa. 1985. Drift in Hawaiian Streams. *Verhandlungen Internationale Vereinigung für Theoretische und Angewandte Limnologie* 22: 2119-2124.
- Martin, M. A., D. K. Shiozawa, E. J. Loudenslager, and J. N. Jensen. 1985. An electrophoretic study of cutthroat trout populations in Utah. *Great Basin Naturalist* 45 (4): 677-687.
- Devine, M. G. and D. K. Shiozawa. 1984. Littoral heterogeneity and diel behavior of white bass (*Morone chrysops*) and carp (*Cyprinus carpio*) in Utah Lake, Utah. *Great Basin Naturalist* 44 (3): 509-515.
- Shiozawa, D. K. and J. R. Barnes. 1977. The microdistribution and population trends of larval *Tanypus stellatus* Coquillett and *Chironomus frommeri* Atchley and Martin (Diptera: Chironomidae) in Utah Lake, Utah. *Ecology* 58(3):610-618.

Professional Reports and non-peer reviewed proceedings

- Evans, R. P., D. D. Houston, and Shiozawa, D. K. April 2012. Genetic status of Utah cutthroat trout populations: December 2011 samples. Final Report to Utah Division of Wildlife Resources. Salt Lake City, UT. 5 pp.

- Houston, D. D., R. P. Evans and D. K. Shiozawa. February 2012. Genetic status of cutthroat trout populations in Great Basin National Park and surrounding streams of Eastern Nevada: an assessment of introgression. Final Report Part 1 to Great Basin National Park, Baker Nevada and Nevada Department of Wildlife, Ely, NV. 15pp.
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- Barnes, J. R. and D. K. Shiozawa. 1980. A description and assessment of the Raft River Lotic System in the Vicinity of the Raft River Geothermal Area. Report. to the Department of Energy, Idaho Operations Office, Idaho Falls, Idaho. 168 pp.
- Shiozawa, D. K. 1978. The habitat preferences, seasonal drift and abundance of stream microcrustacea. Ph.D. thesis. University of Minnesota. 151 pp.
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- Barnes, J. R., T. W. Toole, D. L. Tillman, and D. K. Shiozawa. 1974. The effect of the Goshen Bay dike on the benthos of Utah Lake in relation to water quality. Report to Center for Water Resources Research, Utah State University. 93 pp.
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Scholarly Presentations

* = Invited

- Mortenson, S., C. Gourley, J. Petersen, and D. Shiozawa. 2015. Relict dace conservation in Ruby Valley, Nevada: spring restoration, genetic status, and reintroduction efforts. 47nd Annual meeting of the Desert Fishes Council. Death Valley, CA. November 18-20, 2015.
- *Shiozawa, D. K., P. Ridge, B. Pickett, P. Unmack, D. D. Houston, R. P. Evans. 2015. Refining phylogenetic relationships among cutthroat trout. American Fisheries Society 145th Annual Meeting. Portland, Oregon. August 16-20, 2015.
- * Houston, D. D., R. P. Evans, and D. K. Shiozawa. 2015. Cutthroat trout subspecies delineation using diagnostic single nucleotide polymorphisms. American Fisheries Society 145th Annual Meeting. Portland, Oregon. August 16-20, 2015.
- *Shiozawa, D. K., S. Y. Oh, P. Ridge, B. Pickett, R. Paul Evans. 2015. Phylogeography of Cottids in the Lost River Streams of Idaho. American Fisheries Society 145th Annual Meeting. Portland, Oregon. August 16-20, 2015.
- Ridge, P. G., D. K. Shiozawa, and C.J. Whipple. 2014. A Novel Algorithm for Finding SSRs in Genetic Sequences. Biotechnology and Bioinformatics Symposium. 11th annual meeting. Provo, UT. December 11-12, 2014.
- *Shiozawa, D. K. and R. P. Evans. 2014. Phylogenetics to Ecology – the past and a glimpse of the future illustrated with cottids, whitefish, and lake suckers. Tri-State Colorado River Cutthroat Trout Conservation Team. Grand Junction, Colorado. December 11-12, 2014.
- Oh, S. Y., R. P. Evans, D. Houston, N. Davis, J. Page, and D. K. Shiozawa. 2014. Phylogenetic relationships of cottids (Pisces:Cottidae) in the upper Snake River Plain of Idaho. Society of Freshwater Science 2014 Annual Meeting and the Joint Aquatic Sciences Meeting. Portland, Oregon. May 18-23, 2014.
- *Shiozawa, D. K., D. Houston, P. Unmack, S. Oh⁴, D. Neely, and R. P. Evans. 2014. Molecular studies of fishes as they relate to interrelationships among the Bonneville, Lahontan and Snake River basins. Late Cenozoic to Recent Geologic and Biotic History of the Snake River. Workshop sponsored by Smithsonian Institution National Museum of Natural History and Idaho State University. March 24-26. Pocatello, Idaho.
- *Shiozawa, D. K., R. P. Evans, P. Unmack, and D. D. Houston. 2014. Phylogenetic relationships of the cutthroat trout – from Robert Behnke to the future. 2014 Utah Chapter American Fisheries Society Meeting. Price, Utah. March 11-13, 2014.
- *Shiozawa, D. K. 2014. Employment opportunities at the University Level. Professional Networking Opportunity Workshop. 2014 Utah Chapter American Fisheries Society Meeting. Price, Utah. March 11-13, 2014.
- Hansen, B., M. Belk, D. Shiozawa, S. Adams, R. Beck, and E. Combs. 2014. Variation in age, growth, and isotopic and trophic niche in black rockfish (*Sebastes melanops*) from Southeast Alaska. 2014 Utah Chapter American Fisheries Society Meeting. Price, Utah. March 11-13, 2014.
- *Shiozawa, D. K. 2014. Phylogenetic relationships of the cutthroat trout – a reflection of the geological history of Western North America. Seminar. Utah Valley University. Orem, Utah. February 14, 2014.
- *Shiozawa, D. K., D. D. Houston, R. Paul Evans, P. J. Maughan, N. Davis, J. Page, P. Unmack, D. B. Elzinga, and J. S. Kauwe. 2013. Greenback trout genetics and meristics studies –facilitated expert panel workshop. U.S. Fish and Wildlife Service. Denver, Colorado. July 29-August 2, 2013.
- Fenwick, A., K. Arnaldi, C. Marr, N. Davis, D. K. Shiozawa, and A. Schultheis. Multilocus phylogeography of a sky island stonefly using mtDNA and anonymous nuclear loci. *Evolution* 2013. Society for the Study of Evolution. Snowbird, Utah. June 21-25, 2013.
- Houston, D. D., N. Davis, J. Page, P. Ridge, R. Paul Evans, D. K. Shiozawa. Whole transcriptome sequencing facilitates nuclear marker development in salmonid fishes. *Evolution* 2013. Society for the Study of Evolution. Snowbird, Utah. June 21-25, 2013.
- *Schultheis A.S., N. Davis, J. T. Page, J. E. Bond and D. K. Shiozawa. Comparative transcriptomics allows for rapid

- development of population-level nuclear markers in *Hesperoperla pacifica* (Plecoptera). Society of Freshwater Science 2013 Annual Meeting. Jacksonville, Florida. May 19-23, 2013.
- Davis, N. G., J. T. Page and D. K. Shiozawa. Application of next-generation transcriptomics tools for non-model organisms: gene discovery and marker development within Plecoptera (Insecta). Society of Freshwater Science 2013 Annual Meeting. Jacksonville, Florida. May 19-23, 2013.
- Oh, S. Y., R. P. Evans, D. D. Houston, N. Davis, J. T. Page, and D. K. Shiozawa. Transcriptomes: developing phylogenetic markers for Western North American Sculpin - *Cottus* spp. (Pisces: Cottidae) Society of Freshwater Science 2013 Annual Meeting. Jacksonville, Florida. May 19-23, 2013.
- Houston, D. D., D. B. Elzinga, P. J. Maughan, S. M. Smith, J. S. K. Kauwe, R. P. Evans, R. B. Stinger, and D. K. Shiozawa. Next generation sequencing and bioinformatics procedures identify single nucleotide polymorphisms capable of differentiating cutthroat trout subspecies. 44th Annual meeting of the Desert Fishes Council. Death Valley, Utah. November 14-18, 2012.
- Davis N. G., J. T. Page, D. K. Shiozawa. Transcriptome-based genetic marker development for non-model organisms. 44th Annual meeting of the Desert Fishes Council. Death Valley, Utah. November 14-18, 2012.
- *Shiozawa, D. K. and R. P. Evans. Review of greenback cutthroat trout genetics – the multi-basin subdivision of this cutthroat trout and where do we go from here? Colorado River cutthroat trout inter-agency recovery team. Salt Lake City, UT November 7, 2012.
- Sproul, J. D. K. Shiozawa, D. D. Houston, and R. P. Evans. Improving molecular studies in aquatic groups with next-generation sequencing: marker discovery and data set generation. Society of Freshwater Science 2012 Annual Meeting. Louisville, Kentucky. May 20-24, 2012.
- Sproul, J. D., N. L. Laitinen, R. P. Evans, D. D. Houston, and D. K. Shiozawa. Workshop: Genetic research, capabilities, approaches, and interpretation. Utah Chapter of the American Fisheries Society. Bullfrog Marina, Lake Powell, Utah. March 26-28, 2012.
- Houston, D. D., D. K. Shiozawa, P. J. Maughan, R. P. Evans, S. M. Smith, D. B. Elzinga, R. J. Stinger, and J. S. Kauwe. Discovery of single nucleotide polymorphisms (SNPs) in cutthroat trout subspecies using next-generation sequencing technology. Western Division of the American Fishery Society. Jackson Wyoming. March 27-29, 2012.
- *Shiozawa, D. K., R. P. Evans, and D. D. Houston. The genetic status of Relict Dace in Ruby Lake National Wildlife Refuge. A conference with Ruby Lake National Wildlife Refuge, Nevada Department of Wildlife, and Otis Bay Consulting. Ruby Lake, Nevada. December 16, 2011.
- Laitinen N., and D. K. Shiozawa. Phylogeography of the mountain suckers in western North America. Invited presentation to the Three Species Annual Conservation Team Meeting. Utah Division of Wildlife Resources. Salt Lake City, Utah. November 3, 2011.
- Evans, R. P. D. K. Shiozawa, P. J. Unmack and D. D. Houston. Cutthroat Trout Phylogenetic Relationships: Geologic Processes Preserved in DNA. 92nd Annual Meeting Pacific Division, American Association for the Advancement of Science. San Deigo, CA. June 12-16, 2011.
- Houston, D. D., D. K. Shiozawa, and B. R. Riddle. Phylogenetic relationships, molecular dating, and phylogeography of the western North American genus *Richardsonius*. Utah Chapter of the American Fisheries Society. Salt Lake City, Utah. March 21-23, 2011.
- Laitinen, N., D. K. Shiozawa, P. Unmack, and D. D. Houston Comparative phylogeography and molecular dating of various Western North American fish. Utah Chapter of the American Fisheries Society. Salt Lake City, Utah. March 21-23, 2011.
- Oh, S. Y., P. J. Unmack, R. P. Evans and D. K. Shiozawa Phylogeographic Relationships of *Cottus bairdii*. Utah Chapter of the American Fisheries Society. Salt Lake City, Utah. March 21-23, 2011.
- Sproul, J. and D. K. Shiozawa. Lentic seston enhancement of tailwater fisheries. Utah Chapter of the American Fisheries Society. Salt Lake City, Utah. March 21-23, 2011.
- Houston, D. D., R. P. Evans, and D. K. Shiozawa. Evaluating the genetic purity of relict dace populations in the central Great Basin. 42nd Annual meeting of the Desert Fishes Council. Moab, Utah. November 18-20, 2010.
- Unmack, P. J., D. K. Shiozawa, N. J. Laitinen, C. L. Secor, G. R. Smith, R. L. Mayden, T. E. Dowling. A mitochondrial DNA phylogeny of the mountain suckers, *Pantosteus*. 42nd Annual meeting of the Desert Fishes Council. Moab, Utah. November 18-20, 2010.
- Evans, R. P., D. K. Shiozawa, P. J. Unmack, and J. Mathis. Greenback Cutthroat Trout in the Colorado River Basin: The original homestead? 42nd Annual meeting of the Desert Fishes Council. Moab, Utah. November 18-20, 2010.

- Shiozawa, D. K., R. P. Evans, P. Unmack, A. Johnson, and J. Mathis. Cutthroat trout phylogenetic relationships with an assessment of geographical associations among several cutthroat trout subspecies. Wild Trout X. West Yellowstone, Montana. September 26-30, 2010.
- Unmack, P., D. K. Shiozawa, and R. P. Evans. Cutthroat trout phylogeny. Annual Meeting of the American Society of Ichthyologists and Herpetologists. Providence, Rhode Island. July 7-12, 2010.
- Laitinen, N., D. K. Shiozawa, and P. Unmack. Redefining species boundaries of *Pantosteus* (*Catostomus*) based on mitochondrial DNA. Joint Meeting, American Society of Limnology and Oceanography and the North American Benthological Society. Santa Fe, New Mexico. June 6-11, 2010.
- Laitinen, N., D. K. Shiozawa, and P. Unmack. Redefining species boundaries of *Pantosteus* (*Catostomus*) based on mitochondrial DNA. 2010 Western Division of the American Fisheries Society Annual Meeting. Salt Lake City, Utah. April 19-22, 2010.
- Evans, R. P., D. K. Shiozawa, and P. Unmack. A mitochondrial DNA phylogeny of *Oncorhynchus clarkii*, cutthroat trout. 2010 Western Division of the American Fisheries Society Annual Meeting. Salt Lake City, Utah. April 19-22, 2010.
- *Shiozawa, D. K., R. P. Evans, D. Houston, and P. Unmack. Invited paper. Comparative phylogeography and western drainage history: a geographical view through a genetic window. 2010 Western Division of the American Fisheries Society Annual Meeting. Salt Lake City, Utah. April 19-22, 2010.
- *Shiozawa, D. K. Invited session presentation. Geological history and the dispersal of western fishes. Invited presentation. Regional Aquatics, Hydrology, and Soils Workshop, Region 4, U. S. Forest Service. Ogden, Utah, April 13, 2010
- Unmack, P.J. and D. K. Shiozawa. A mitochondrial DNA phylogeny of *Oncorhynchus clarkii*, cutthroat trout. 41st Annual meeting of the Desert Fishes Council. Death Valley, California. November 18-22, 2009.
- Stutz, H. L., and D. K. Shiozawa. Inferring dispersal of aquatic invertebrates from genetic variation: A comparative study of an amphipod, Talitridae *Hyaella azteca*, and mayfly, Baetidae *Callibaetis americanus*, in Great Basin springs. 41st Annual meeting of the Desert Fishes Council. Death Valley, California. November 18-22, 2009.
- Laitinen, N. J., D. K. Shiozawa, P. J. Unmack, and M. C. Belk. Genetic diversity of mountain suckers, *Catostomus* (*Pantosteus*) *platyrhynchus*. 41st Annual meeting of the Desert Fishes Council. Death Valley, California. November 18-22, 2009.
- Houston, D. D. , D. K. Shiozawa, and B. R. Riddle. Investigating the effects of pluvial Lake Lahontan on diversification among populations of Lahontan Redside Shiner, *Richardsonius egregius*. Society for the Study of Evolution. Moscow, Idaho. June 12-16, 2009
- *Shiozawa, D. K., R. Paul Evans, D. Houston, and P. Unmack. Comparative phylogeography of some interior western North American fishes. Lineage Greenback Cutthroat Trout Conservation Team. Grand Junction, Colorado. June 7-9, 2009.
- Shiozawa, D. K., B. J. Weibell, R. P. Evans. Comparative phylogeography - the role of history in the structuring of aquatic communities. North American Benthological Society. Grand Rapids, Michigan. May 17-22, 2009.
- *Shiozawa, D. K. and R. P. Evans. Comparative phylogeography - the role of history in the dispersal of some interior western North American fishes. Bonneville Cutthroat Trout Conservation Team, Spring Range-Wide Meeting. Salt Lake City, Utah. April 8-9, 2009
- Eyring, K., J. Mathis, S. Moon, D. Shiozawa, and R. P. Evans. Cutthroat trout (*Oncorhynchus clarkii*) phylogeny. Utah Conference on Undergraduate Research. Westminster College, Salt Lake City, Utah. February 20, 2009.
- Houston, D. D., D. K. Shiozawa and B. R. Riddle. Post-glacial Colonization of the Pacific Northwest by the Redside Shiner, a Widespread Western North American Minnow. Annual Meeting for the Society for the Study of Evolution. Minneapolis, MN. June 20-24, 2008
- Stutz, H., D. K. Shiozawa, K. Tanner, R. P. Evans, R. Rader. Estimating dispersal of spring invertebrates through genetic diversity in threatened habitats of the Great Basin. North American Benthological Society. Salt Lake City, UT. May 26-30, 2008.
- Fordham, A., N. Hyatt, E. Reinhart, M. Barrett, M. Belk, and D. Shiozawa. Age and growth of Utah *Cottus bairdii* populations. Utah Chapter of the American Fisheries Society Moab, Utah. February 25-27, 2008.
- Tanner, K., H. Stutz, R. P. Evans, R. Rader and D. K. Shiozawa. Estimating dispersal of spring invertebrates through genetic diversity in threatened habitats of the Great Basin. Utah Chapter of the American Fisheries Society Moab, Utah. February 25-27, 2008.
- Hansen, C., H. Stutz, K. Tanner, D. K. Shiozawa. Taxonomic diversity of spring invertebrates in threatened habitats of the Great Basin. Utah Chapter of the American Fisheries Society Moab, Utah. February 25-27, 2008.
- Laitinen, N., D. K. Shiozawa, and R. P. Evans. Genetic relationships of mountain suckers and bluehead suckers based on mitochondrial DNA. Utah Chapter of the American Fisheries Society Moab, Utah. February 25-27, 2008.

- *Shiozawa, D. K. Native fishes and the late Cenozoic drainage history of western North America Biology Seminar, Utah Valley State University, Orem, Utah. January 18, 2008.
- Stutz, H., D. K. Shiozawa, K. Tanner, R. P. Evans, and R. B. Rader. Estimating dispersal of spring invertebrates through genetic diversity in threatened habitats of the Great Basin. 39th Annual meeting of the Desert Fishes Council. Ventura, California. November 14-18, 2007.
- Hansen, C., H. L. Stutz, K. J. Tanner, M. Barney, R. B. Rader, E. E. Redlin, J. M. Keleher, and D. K. Shiozawa. 2007. Taxonomic diversity of spring invertebrates in threatened habitats of the Great Basin. 39th Annual meeting of the Desert Fishes Council. Ventura, California. November 14-18, 2007.
- Laitinen, N., D. K. Shiozawa, and R. P. Evans. 2007. Genetic relationships of mountain sucker and bluehead sucker based on mitochondrial DNA. 39th Annual meeting of the Desert Fishes Council. Ventura, California. November 14-18, 2007.
- Shiozawa, D. K., D. Christensen, and R. P. Evans. 2007. Genetic relationships of *Cottus bairdii* in Butterfield Springs, NV to other populations of *Cottus bairdii*. 39th Annual meeting of the Desert Fishes Council. Ventura, California. November 14-18, 2007.
- Semon, H., D. K. Shiozawa, and R. Rader. 2007. Diversity and dispersal of aquatic invertebrates in desert springs of Eastern Nevada. 55th Annual Meeting of the North American Benthological Society. Columbia, South Carolina. June 3-8, 2007.
- Janetski, D. J., D. Shiozawa, and R. P. Evans. 2007. Genetic evidence for restricted gene flow between cutthroat trout spawning populations in Yellowstone Lake. 55th Annual Meeting of the North American Benthological Society. Columbia, South Carolina. June 3-8, 2007.
- Baker, B., P. Peterson, M. Palmer, J. Joern, J. Tefteller, D. K. Shiozawa. 2007. Brown trout age versus diet. March 19-21, 2007. Annual meeting of the Bonneville Chapter of the American Fisheries Society. Logan, UT, USA
- Hadley, M. J., D. K. Shiozawa, K. A. Hatch, and M. C. Belk. 2007. Effects of forage fish presence on the diet and growth of brown trout in streams. March 19-21, 2007. Annual meeting of the Bonneville Chapter of the American Fisheries Society. Logan, UT, USA
- Johnson, A., D. K. Shiozawa, R. P. Evans. 2007. Resolving phylogenetic relationships of cutthroat trout in the Bear River Drainage. March 19-21, 2007. Annual meeting of the Bonneville Chapter of the American Fisheries Society. Logan, UT, USA
- *Shiozawa, D. K. 2007. Geological history and potential dispersal corridors for western fishes. Cutthroat trout taxonomy symposium. Colorado Division of Wildlife Resources. Thornton, Colorado. January 23-24, 2007
- Christensen, D., D. K. Shiozawa, R. P. Evans, and M. Campbell. 2006. Sculpin dispersal and phylogenetics in the interior of Western North America. 38th Annual meeting of the Desert Fishes Council. Death Valley, California. November 15-18, 2006.
- Shiozawa, D. K., R. P. Evans, D. Christensen, and M. Campbell. 2006. Sculpin and drainage history of the Eastern Snake River Plain, Idaho. 54th Annual Meeting of the North American Benthological Society. Anchorage, Alaska. June 11-15, 2006.
- Houston D. D., D. K. Shiozawa and B. R. Riddle. 2006. Phylogenetic affinities and biogeographic implications of evolution in a clade of Western North American cyprinids. The Society for Molecular Biology and Evolution. Annual Conference. Tempe, AZ. May, 2006
- *Shiozawa, D. K., D. J. Janetski, A. Johnson, and R. P. Evans. 2006. Evolution, distribution, and phylogeny of cutthroat trout in Utah and Wyoming. In Van Kirk, R. W., J.M. Capurso, and M. A. Novak (eds). 2006. Exploring the differences between the fine-spotted and large-spotted Yellowstone cutthroat trout. Symposium Proceedings, Idaho Chapter of the American Fisheries Society, Boise Idaho. Held February 14, 2006. Idaho Falls, Idaho.
- Mueller, A. M., D. K. Shiozawa, R. P. Evans. 2005. Distribution of mitochondrial lineages in the Colorado River Cutthroat trout. 135th Annual meeting of the American Fisheries Society. Anchorage, Alaska. September 11-15, 2005.
- Janetski, D. J., D. K. Shiozawa, and R. P. Evans. 2005. The genetic structure of spawning populations of cutthroat trout in Yellowstone Lake. 135th Annual meeting of the American Fisheries Society. Anchorage, Alaska. September 11-15, 2005.
- Hadley, M. J., D. K. Shiozawa, and K. A. Hatch. 2005. Using Stable Isotope Analysis to Assess Foraging Patterns of Brown Trout. 135th Annual meeting of the American Fisheries Society. Anchorage, Alaska. September 11-15, 2005.
- Evans, R. P., A. D. Moffat, D. K. Shiozawa, and J. Crowley. 2005. A Phylogenetic Analysis of Sculpin (genus *Cottus*) in Montana. 135th Annual meeting of the American Fisheries Society. Anchorage, Alaska. September 11-15, 2005.
- Garlick, J. W., D. K. Shiozawa, M. C. Belk, and S. McMurry. 2005. Relationship Between Elevation and Growth Rate Among *Cottus bairdi* in Utah. 135th Annual meeting of the American Fisheries Society. Anchorage, Alaska. September 11-15, 2005.

- Miller, B. A., R. P. Evans, and D. K. Shiozawa. 2005. The Phylogeography of Mountain Whitefish in Western North America. 135th Annual meeting of the American Fisheries Society. Anchorage, Alaska. September 11-15, 2005.
- Johnson, A. E., D. K. Shiozawa, R. P. Evans, and D. J. Janetski. 2005. Resolving Phylogenetic Relationships of Selected Members of the Yellowstone Cutthroat Trout Complex. 135th Annual meeting of the American Fisheries Society. Anchorage, Alaska. September 11-15, 2005.
- Christensen, D. W., D. K. Shiozawa, R. P. Evans, J. Crowley, and M. Campbell. 2005. The Cottids of the Lost River sinks - their relationships and origin. 135th Annual meeting of the American Fisheries Society. Anchorage, Alaska. September 11-15, 2005.
- Smith, C. N., J. M. Crowley, D. K. Shiozawa, and R. P. Evans. 2005. Phylogenetic relationships of *Cottus beldingi* in the Basin and Range and Colorado Plateau of Western North America. 53rd. Annual Meeting of the North American Benthological Society. New Orleans, Louisiana. May 22-27, 2005.
- Peterson, E., D. K. Shiozawa, and K. Hatch. 2005. Ecological Role of the New Zealand Mudsail in the Provo River. 53rd. Annual Meeting of the North American Benthological Society. New Orleans, Louisiana. May 22-27, 2005.
- Johnson, A., D. K. Shiozawa, R. P. Evans and D. Janetski. 2005. Resolving Phylogenetic Relationships of the Yellowstone Cutthroat Trout Complex. March 8, 2005. Annual meeting of the Bonneville Chapter of the American Fisheries Society. Garden City, UT, USA.
- *Shiozawa, D. K. 2005. Application of genetic information to fishery management decisions. Conservation Genetics and Broodstock Management: a workshop. March 7, 2005. Annual meeting of the Bonneville Chapter of the American Fisheries Society. Garden City, UT, USA.
- Weibull, B. J. and D. K. Shiozawa. 2005. Semi-quantitative assessment of macroinvertebrate restoration to channel reconstruction using point sampling. American Society of Limnology and Oceanography Aquatic Sciences Meeting. February 20-25, 2005. Salt Lake City, UT, USA.
- D.J. Lee, R. Schoenberger, D. Shiozawa, X. Xu, and P. Zhan. 2004. Contour Matching for a Fish Recognition and Migration Monitoring System. International Society for Optical Engineering. Optics East, Two and Three-Dimensional Vision Systems for Inspection, Control, and Metrology II, vol. 5606-06, October 25-28, 2004, Philadelphia, PA, USA.
- Shiozawa, D. K. and R. P. Evans. 2004. Insights into the drainage basin history of Western North America - fragmentary information based on phylogenies of aquatic organisms. Annual Meeting of the Desert Fishes Council. November 11-14, 2004, Tucson, AZ, USA.
- Miller, B. A., R. P. Evans, and D. K. Shiozawa. 2004. Phylogeography of *Prosopium* in Western North America.. Annual Meeting of the Desert Fishes Council. November 11-14, 2004, Tucson, AZ, USA.
- Crowley, J., D. K. Shiozawa, and R. P. Evans. 2004. Phylogenetics and cottids. Annual Meeting of the Desert Fishes Council. November 11-14, 2004, Tucson, AZ, USA.
- D.J. Lee, R. Schoenberger, D. Shiozawa, X. Xu, and P. Zhan. 2004. Contour Matching for a Fish Recognition and Migration Monitoring System. International Society for Optical Engineering. Optics East, Two and Three-Dimensional Vision Systems for Inspection, Control, and Metrology II, vol. 5606-06, October 25-28, 2004, Philadelphia, PA, USA.
- D. J. Lee, P. Zhan, D. K. Shiozawa, and R. Schoenberger. 2004. An automated fish recognition and migration monitoring system for biology research. Annual Meeting of the Western Division of the American Fisheries Society. February 29-March 4, 2004, Salt Lake City, UT
- Strout, C., D. K. Shiozawa, and D. J. Lee. 2004. Computerized fish imaging and population count analysis. Annual Meeting of the Western Division of the American Fisheries Society. February 29-March 4, 2004, Salt Lake City, UT (Undergraduate paper)
- Shiozawa, D. K. and M. C. Belk. 2003. Shallow water meiofaunal communities in Utah Lake. 51st Annual meeting of the North American Benthological Society. May 27-June 1, 2003. Athens, Georgia.
- Kauwe, J. S., D. K. Shiozawa, and R. P. Evans. 2003. Using DNA markers to investigate interbasin relationships and define species classification of stoneflies. 51st Annual meeting of the North American Benthological Society. May 27-June 1, 2003. Athens, Georgia.
- Johnson, A., J. S. Kauwe, D. K. Shiozawa, and R. P. Evans. 2003. The general applicability of a cytochrome B primer for stoneflies. 51st Annual meeting of the North American Benthological Society. May 27-June 1, 2003. Athens, Georgia. (Undergraduate poster)
- Hansen, J., A. Johnson, J. S. Kauwe, D. Janetski, D. K. Shiozawa, and R. P. Evans. 2003. Can cytochrome B sequences detect a stream capture event in the Bonneville Basin? 51st Annual meeting of the North American Benthological Society. May 27-June 1, 2003. Athens, Georgia. (Undergraduate poster)
- *Shiozawa, D. K. 2003. The macrobenthos responses to restoration activities in the middle Provo River. Annual Meeting of the Provo River Reclamation Project. Annual Researchers Meeting. April 10, 2003. Heber City, UT.

- Houston, D. D., D. K. Shiozawa, and M. F. Whiting. 2003. Phylogeography of the pikeminnows (*Ptychocheilus sp.*) based on mitochondrial DNA sequences. Joint meeting of the Colorado-Wyoming and Bonneville Chapters of the American Fisheries Society. March 4-6, 2003. Grand Junction, Colorado.
- Crowley, J. M., R. P. Evans, and D. K. Shiozawa. A phylogenetic analysis of sculpin (Cottidae: *Cottus*) in the Basin and Range Province of western North America based on the ND4-L/ND4 region of the mitochondrial genome. Joint meeting of the Colorado-Wyoming and Bonneville Chapters of the American Fisheries Society. March 4-6, 2003. Grand Junction, Colorado.
- Miller, B. A., D. K. Shiozawa, and R. P. Evans. 2003. The phylogeography of the mountain whitefish (*Prosopium williamsoni*) in western North America as reflected in the cytochrome b gene of the mitochondrial genome. Joint meeting of the Colorado-Wyoming and Bonneville Chapters of the American Fisheries Society. March 4-6, 2003. Grand Junction, Colorado. (Undergraduate oral presentation)
- McKell, M. D., D. K. Shiozawa, and R. P. Evans. 2003. Genetic variation and phylogeography of speckled dace in the intermountain west, usa, based on mitochondrial dna sequences. Joint meeting of the Colorado-Wyoming and Bonneville Chapters of the American Fisheries Society. March 4-6, 2003. Grand Junction, Colorado.
- McKell, M. D., B. A. Miller, D. K. Shiozawa, and R. P. Evans. 2003. Phylogeographic aspects of four native fishes in the Colorado River drainage in western Colorado. Joint meeting of the Colorado-Wyoming and Bonneville Chapters of the American Fisheries Society. March 4-6, 2003. Grand Junction, Colorado.
- Houston, D. D., D. K. Shiozawa, and M. F. Whiting. 2003. Phylogenetic relationships of the genus *Ptychocheilus* (Teleostei: Cyprinidae) and closely related taxa and the biogeographic implications. International Biogeography Society. January 6-2003. Mesquite, Nevada.
- McKell, M. D., D. K. Shiozawa, and R. P. Evans. 2003. Phylogeography of speckled dace, *Rhinichthys osculus*, in the Intermountain Region, U. S. A., Based on Mitochondrial DNA Sequences. International Biogeography Society. January 6-2003. Mesquite Nevada .
- Miller, B. A., D. K. Shiozawa, and R. P. Evans. 2003. The phylogeography of the mountain whitefish (*Prosopium williamsoni*) and its phyletic relationships with the endemic Bear Lake whitefishes. International Biogeography Society. January 6-2003. Mesquite Nevada. (Undergraduate poster)
- *Shiozawa, D. K. and R. P. Evans. 2002. Cutthroat trout genetics and population viability. Intermountain West Cutthroat Trout Population Viability Workshop. Salt Lake City, UT. June 10, 2002.
- *Shiozawa, D. K. and R. P. Evans. 2002. The interbasin dispersal of cutthroat trout: comparing phylogenetic relationships and geological history. 50th Annual meeting of the North American Benthological Society. May 27-June 2, 2002. Pittsburgh, Pennsylvania.
- Kauwe, J. S., Shiozawa, D. K. and R. P. Evans. 2002. Using DNA markers to investigate interbasin relationships and dispersal of stoneflies. 50th Annual meeting of the North American Benthological Society. May 27-June 2, 2002. Pittsburgh, Pennsylvania.
- *Shiozawa, D. K. and R. P. Evans. 2002. Biogeography and genetic patterns of Colorado River Cutthroat Trout - their relationship with other western salmonids. Workshop on Colorado River Cutthroat trout phylogenetics for the Colorado River Cutthroat Trout Recovery Team, with R. P. Evans. Conference sponsored by the Colorado Division of Wildlife. May 21-22, 2002. Montrose, CO.
- R. P. Evans and D. K. Shiozawa. 2002. The application of DNA analyses to investigations of introgression and phylogeny of Colorado River Cutthroat Trout. Workshop on Colorado River Cutthroat trout phylogenetics for the Colorado River Cutthroat Trout Recovery Team, with R. P. Evans. Conference sponsored by the Colorado Division of Wildlife. May 21-22, 2002. Montrose, CO.
- *Shiozawa, D. K. and J. Christensen. 2002. Macroinvertebrate responses to the restoration of the middle Provo River. Provo River Restoration Project Annual Researchers Meeting. May 1, 2001. Heber City, Utah.
- Shiozawa, D. K. and R. P. Evans. 2001. The evolution of the cutthroat trout with insights into the evolution of the Greenback Cutthroat Trout, *Oncorhynchus clarki stomias*. Invited workshop instruction with the Colorado Division of Wildlife. August 27-28, 2001. Denver, Colorado.
- *R. P. Evans and Shiozawa, D. K. 2001. The application and theory of DNA based phylogenetics in the projection and interpretation of phylogenetic relationships among cutthroat trout with insights into the evolution of the Greenback Cutthroat Trout, *Oncorhynchus clarki stomias*. Invited workshop instruction with the Colorado Division of Wildlife. August 27-28, 2001. Denver, Colorado.
- Weibell, B. J., N. Weibell and D. K. Shiozawa. 2001. Use of multivariate canonical discriminant analysis to separate by benthic macroinvertebrate community composition patterns. 49th Annual meeting of the North American Benthological Society. June 2-8, 2001. La Crosse, Wisconsin. (Undergraduate paper)

- Weibell, N., B. J. Weibell and D. K. Shiozawa. 2001. The detection of underlying patterns in benthic macroinvertebrate composition with different data types using cluster analysis. 49th Annual meeting of the North American Benthological Society. June 2-8, 2001. La Crosse, Wisconsin. (Undergraduate paper)
- Christensen, J. R., J. K. Shumway, C. Blumell, and D. K. Shiozawa. 2001. Use of Discriminant analysis to determine differences in benthic communities in the Provo River, Utah. 26th Annual West Coast Biological Sciences Undergraduate Research Conference April 28, 2001. Santa Clara, California. (Undergraduate paper)
- Shumway, J. K., J. R. Christensen, C. Blumell, and D. K. Shiozawa. 2001. Point sampling, species area relationships, and cluster analysis: detecting differences between macroinvertebrate benthos communities in the Provo River, Utah. 26th Annual West Coast Biological Sciences Undergraduate Research Conference April 28, 2001. Santa Clara, California. (Undergraduate paper)
- *Shiozawa, D. K. 2001. Point sampling - a test of the technique with data from the Provo River. March 23, 2001. College of Biology and Agriculture Ecology Seminar series. Brigham Young University. Provo, Utah.
- Shiozawa, D. K. 2001. Provo River Macroinvertebrate Monitoring Report. Annual Provo River Reclamation Project meeting. March 22-23, 2001. Heber City, Utah.
- Michael McGee, Dennis K. Shiozawa, and Mark C. Belk. 2000. Management Implications of Life History Patterns in High Elevation Cutthroat Trout. Wild Trout VII. September 2000. Yellowstone National Park, Wyoming.
- Shiozawa, D. K. and B. J. Weibell. 2000. Point sampling as a bioassessment tool. 48th Annual meeting of the North American Benthological Society. May 29-June 1, 2000. Keystone, Colorado.
- Shiozawa, B. A., B. Bogumill, B. Dever, N. Darby, D. K. Shiozawa, and R. P. Evans. March 15, 2000. The genetic identity of cutthroat trout in Great Basin National Park - a Bonneville cutthroat trout population. Bonneville Chapter, American Fisheries Society. March 15-16, 2000. Salt Lake City, Utah.
- Shiozawa, D. K., S. L. Grover, and J. W. Sites. March 15, 2000. The genus Cottus in the Bonneville, Snake River and Green River drainages. Bonneville Chapter, American Fisheries Society. March 15-16, 2000. Salt Lake City, Utah.
- *Shiozawa, D. K. and R. P. Evans. Hybridization issues and cutthroat trout. Inland Interstate Cutthroat Trout Meeting. February 23, 2000. Salt Lake City, Utah.
- *Shiozawa, D. K. and B. J. Weibell. February 16, 2000. Macroinvertebrate monitoring and studies. Provo River Restoration Project Meetings. February 16-17, 2000. Heber City, Utah.
- Shiozawa, D. K. and R. P. Evans. The ghost of multiple invasions: mitochondrial DNA and cutthroat trout phylogenetics. 47th Annual meeting of the North American Benthological Society. May 24-28, 1999. Duluth, Minnesota.
- *Shiozawa, D. K. and R. P. Evans. March 31, 1999. Genetic applications to species conservation. Invited paper. Region 4 Cutthroat Trout Conservation and Restoration Workshop. U. S. Forest Service. March 31- April 2, 1999. Salt Lake City, Utah.
- *McGee, M., D. K. Shiozawa, and M. Belk. April 1, 1999. Cutthroat life history information. Invited paper. Region 4 Cutthroat Trout Conservation and Restoration Workshop. U. S. Forest Service. March 31- April 2, 1999. Salt Lake City, Utah.
- *Shiozawa, D. K., R. P. Evans, and D. Proebstel. March 2, 1999. Future technologies: a DNA based dichotomous key for interior salmonid identification. 34th Annual Meeting of the Colorado-Wyoming Chapter American Fisheries Society. March 2-4, 1999. Cheyenne, Wyoming.
- Evans, R. P. and D. K. Shiozawa. March 1999. Prosopium phylogenies. Bonneville Chapter, American Fisheries Society. March 16-18, 1999. Moab, Utah.
- Shiozawa, D. K. and R. P. Evans. The role of drainage basin history in the mitochondrial DNA diversity of Lahontan, Bonneville, and Colorado River cutthroat trout. Joint meetings of the Colorado/Wyoming and the Bonneville Chapters of the American Fisheries Society. March 3-4, 1998. Grand Junction, Colorado.
- Mickelson, R., D. K. Shiozawa, and M. C. Belk. Age Structure of mottled sculpin under differing predator density. Joint meetings of the Colorado/Wyoming and the Bonneville Chapters of the American Fisheries Society. March 3-4, 1998. Grand Junction, Colorado.
- Bray, A., R. P. Evans, and D. K. Shiozawa. The distribution of nuclear DNA markers in an introgressed metapopulation of cutthroat trout in the Sheep Creek Drainage, Utah. Joint meeting of the

- Colorado/Wyoming and the Bonneville Chapters of the American Fisheries Society. March 3-4, 1998. Grand Junction, Colorado.
- Jones, C., L. Etchberger, R. P. Evans, and D. K. Shiozawa. A cutthroat trout metapopulation study in Sheep Creek - an overview of mtDNA investigations. Joint meeting of the Colorado/Wyoming and the Bonneville Chapters of the American Fisheries Society. March 3-4, 1998. Grand Junction, Colorado.
- Belk, M. C., C. Walser, and D. K. Shiozawa. Leatherside chub in Diamond Fork, Utah. Joint meeting of the Colorado/Wyoming and the Bonneville Chapters of the American Fisheries Society. March 3-4, 1998. Grand Junction, Colorado.
- Evans, R. P., L. Tao, and D. K. Shiozawa. June sucker phylogenetic relationships as determined through short fragment PCR. Joint meetings of the Colorado/Wyoming and the Bonneville Chapters of the American Fisheries Society. March 3-4, 1998. Grand Junction, Colorado.
- Shiozawa, D. K. & Evans, R. P. Use of mtDNA to identify introgression with exotics: a Case study with cutthroat trout. 46th Annual Meeting of the North American Benthological Society. June 2-5, 1998. Prince Edward Island, Canada.
- Tao, L., R. P. Evans, and D. K. Shiozawa. Genetic status of June sucker (*Chasmistes liorus*) before the 1930's drought. Bonneville Chapter of the American Fisheries Society. March 20, 1997. Price, Utah.
- Shiozawa, D. K., and R. P. Evans. Mitochondrial DNA variations among basins and subspecies – the role of glaciation and refuges on genetic variability. Lahontan Cutthroat Trout Recovery Team Meetings. January 22, 1998. Reno, Nevada.
- *Jones, C., L. Etchberger, R. P. Evans, and D. K. Shiozawa. A cutthroat trout metapopulation study in Sheep Creek -- an overview of mtDNA investigations. Cutthroat Trout Management Meeting, Region 4, U. S. Forest Service. April 9, 1997. Vernal, Utah.
- *Bray, A., D. K. Shiozawa, and R. P. Evans. A cutthroat trout metapopulation study in Sheep Creek -- an overview of allozyme investigations. Cutthroat Trout Management Meeting, Region 4, U. S. Forest Service. April 9, 1997. Vernal, Utah.
- *McGee, M., D. K. Shiozawa, and M. C. Belk. A cutthroat trout metapopulation study in Sheep Creek -- an overview of life history investigations. Cutthroat Trout Management Meeting, Region 4, U. S. Forest Service. April 9, 1997. Vernal, Utah.
- *Gresswell, R. E., R. N. Williams, and D. K. Shiozawa. Evolution and life history organization of Yellowstone cutthroat trout. Wild Trout VI. Putting the native back into wild trout. August 18, 1997. Montana State University, Bozeman Montana.
- *Shiozawa, D. K. and R. P. Evans. Cutthroat trout genetic identification - an introduction to some molecular techniques. Invited paper. Conservation and management of wild and native trout fisheries. 17th Annual Mitsubishi Motors World Fly-fishing Championship and Symposium. September 8, 1997. Jackson, Wyoming.
- Jones, C., D. K. Shiozawa, R. P. Evans, and L. K. Etchberger. Genetic Variations of Colorado River Cutthroat Trout {*Onchorynchus clarki pleuriticus*} Populations of the Sheep Creek Drainage in the Uinta Mountains near Vernal, Utah. Annual Meeting of the Desert Fishes Council. November 22, 1997. Death Valley, California.
- Bray, A., D. K. Shiozawa, and R. P. Evans. A cutthroat trout metapopulation study in Sheep Creek -- an overview of allozyme investigations. Annual Meeting of the Desert Fishes Council. November 22, 1997. Death Valley, California.
- McGee, M., D. K. Shiozawa, and M. C. Belk. A cutthroat trout metapopulation study in Sheep Creek -- an overview of life history investigations. Annual Meeting of the Desert Fishes Council. November 22, 1997. Death Valley, California.
- Jordan, S. and D. K. Shiozawa. The soft-sediment benthos of a turbid, sandy river system: the Green and Colorado Rivers of Canyonlands National Park, Utah. 44th Annual meeting of the North American Benthological Society. June 3-8, 1996. Kalispell, Montana.
- *Shiozawa, D. K. and R. P. Evans. Patterns of mitochondrial diversity within several cutthroat trout subspecies as a reflection of geological history. Western Division of the American Fisheries Society. July 14-18, 1996. Eugene, Oregon.
- * Gresswell, R. E., R. N. Williams, and D. K. Shiozawa. Evolution and life-history organization of Yellowstone cutthroat trout. Western Division of the American Fisheries Society. July 14-18, 1996. Eugene, Oregon.

- *D. K. Shiozawa, R. N. Williams, and R. P. Evans. The use of mtDNA to determine relationships among and within cutthroat trout subspecies. Western Division of the American Fisheries Society. July 16-19, 1995. Park City, Utah.
- *Evans, R. P., R. N. Williams, D. Proebstel, and D. K. Shiozawa. Genetics of Lahontan Basin Cutthroat Trout: the Humboldt subspecies and the Pyramid Lake Lahontan Cutthroat Trout. Western Division of the American Fisheries Society. July 16-19, 1995. Park City, Utah.
- Jordan, S. and D. K. Shiozawa. Densities of the meiofauna in different habitats of the Green and Colorado Rivers, Canyonlands National Park, USA. Ninth International Meiofauna Conference. July 3-7, 1995. Perpignan, France.
- Shiozawa, D. K. and R. P. Evans. Mitochondrial DNA haplotype diversity in cutthroat trout. Annual Meeting of the Desert Fishes Council. November 17-18, 1994. Death Valley, California.
- *Shiozawa, D. K. and R. P. Evans. Use of DNA to identify geographical isolation in trout stocks. Wild Trout V Symposium. September 26-27, 1994. Yellowstone National Park, Mammoth Hot Springs, Montana.
- Collins, K. C. and D. K. Shiozawa. Dynamics of plankton and benthic invertebrates in backwater areas of the Green River, Utah. 42nd Annual meeting of the North American Benthological Society. May 24-27, 1994. Orlando, Florida.
- Williams, R. N., R. Gresswell, and D. K. Shiozawa. Effects of serial bottlenecks on genetic and life history attributes of a Yellowstone cutthroat trout population. Ecology and Evolutionary Ethology of Fishes. May 15-18, 1994. University of Victoria. Victoria, British Columbia, Canada.
- Williams, R. N., R. P. Evans, and D. K. Shiozawa. Mitochondrial DNA diversity patterns of Bull Trout in the Columbia and Klamath river basins. Friends of the Bull Trout Conference. May 5-7, 1994. Calgary, Alberta, Canada.
- Shiozawa, D. K., D. L. Davis, and R. P. Evans. Mitochondrial DNA based phylogenetic relationships of some selected catostomids. Bonneville Chapter, American Fisheries Society. March 2-4, 1994. Wendover, Nevada..
- Evans, R. P. and D. K. Shiozawa. Cutthroat trout purity from Utah drainages. Bonneville Chapter, American Fisheries Society. March 2-4, 1994. Wendover, Nevada..
- Johnson, J., M. C. Belk, and D. K. Shiozawa. Age, growth, and reproduction of leatherside chub, Gila copei, in central Utah. Bonneville Chapter, American Fisheries Society. March 2-4, 1994. Wendover, Nevada.
- Shiozawa, D. K. and R. P. Evans. Mitochondrial DNA haplotype diversity in cutthroat trout. Annual Meeting of the Desert Fishes Council. November 17-18, 1994. Death Valley, California.
- Collins, K. C., D. K. Shiozawa, and T. Modde. Predation on invertebrates in backwaters. Annual Meeting of the Upper Basin RIP Biology Committee and Upper Basin Researchers. January 12-14, 1994. Salt Lake City, Utah.
- Westenfelder, C., D. K. Shiozawa, W. G. Guder, G. Moeckel, T. J. Chen, R. L. Baranowski, and C. Kablitz. Organic osmolytes (OO) and salt adaptation in teleost fish (Gila atraria (GA)). American Society of Nephrology. November 14-17, 1993. Boston, Massachusetts.
- Davis, D. L., D. K. Shiozawa, and R. P. Evans. An appraisal of the usefulness of Polymerase Chain Reaction amplified mitochondrial DNA to separate some western catostomids. Annual Meeting of the Desert Fishes. November 10-14, 1993. Monterey, Mexico.
- Belk, M. C., J. B. Johnson, and D. K. Shiozawa. Age, growth and reproduction of leatherside chub, Gila copei, in central Utah. Annual Meeting of the Desert Fishes Council. November 10-14, 1993. Monterey, Mexico.
- *Williams, R. N., R. Leary, E. Bermingham, R. P. Evans, and D. K. Shiozawa. Molecular systematics of polytypic cutthroat trout. American Society of Ichthyology and Herpetology. August 1993. Austin, Texas.
- Proebstel, D. S., R. P. Evans, R. N. Williams, and D. K. Shiozawa. Preservation of tissue from a salmonine fish, Brachymystax lenok, for genetic analysis. International Symposium on Genetics of Subarctic Fish and Shellfish. May 17-19, 1993. Juneau, Alaska.
- Williams, R. P. Evans, D. K. Shiozawa, and D. S. Proebstel. Genetic and geographic variation among bull trout populations in the Columbia and Klamath River Basins. International Symposium on Genetics of Subarctic Fish and Shellfish. May 17-19, 1993. Juneau, Alaska.
- Evans, R. P., H. Palkki, D. K. Shiozawa, and R. N. Williams. Genetic relationship of morphological forms of Dolly Varden (Salvelinus malma). International Symposium on Genetics of Subarctic Fish and Shellfish. May 17-19, 1993. Juneau, Alaska.

- Williams, R. N., D. K. Shiozawa, E. Bermingham, and R. F. Leary. Conservation genetics of cutthroat trout Onchorynchus clarki subspecies: patterns of mitochondrial DNA and allozyme variation. International Symposium on Genetics of Subarctic Fish and Shellfish. May 17-19, 1993. Juneau, Alaska.
- Shiozawa, D. K. Cutthroat phylogenetics: a comparison of techniques. Utah State University, Department of Fisheries and Wildlife. Seminar. April 21, 1993. Logan, Utah.
- *Williams, R. N., D. K. Shiozawa, R. P. Evans, and E. Bermingham. Molecular phylogenies of cutthroat trout (Onchorynchus clarki) based on a hierarchical analysis series of mitochondrial DNA polymorphisms. NOAA Workshop: Application of DNA Technology to the Management of Pacific Salmon. March 22, 1993. Seattle, Washington.
- *Shiozawa, D. K., R. P. Evans, and R. N. Williams. phylogenetics of Cutthroat Trout with an emphasis on some Utah cutthroat populations. Bonneville Chapter, American Fisheries Society. Technical session: Native cutthroat trout. February 25, 1993. St. George, Utah.
- *Shiozawa, D. K. and T. Modde. The evaluation of invertebrate production and community structure. Biology Committee Administrative Review of Projects and Annual Upper Basin Researchers Meeting. January 19-22, 1993. Grand Junction, Colorado.
- *Shiozawa, D. K. and T. Modde. Fish predation in backwater areas. Biology Committee Administrative Review of Projects and Annual Upper Basin Researchers Meeting. January 19-22, 1993. Grand Junction, Colorado.
- *Shiozawa, D. K., R. P. Evans, and R. N. Williams. Phylogenetic relationships of the Bonneville Cutthroat trout. Status Review of the Bonneville Cutthroat Trout (Onchorynchus clarki utah). U.S. Fish and Wildlife Service Meeting. January 12, 1993. Salt Lake City, Utah.
- *Shiozawa, D. K. and L. F. Mabey. Plankton and benthic densities of microcrustaceans from various habitats of the Green River ecosystem near Ouray, Utah. U. S. Fish and Wildlife Service, Colorado River Fish Project Meeting. December 23, 1992. Vernal, Utah.
- *Shiozawa, D. K. and K. Collins. Fish predation in the Green River Ecosystem, a backdoor approach to competition. U. S. Fish and Wildlife Service, Colorado River Fish Project Meeting. December 23, 1992. Vernal, Utah.
- Shen, Y., R. P. Evans, R. N. Williams and D. K. Shiozawa. Restriction fragment length polymorphism (RFLP) of Cutthroat trout Onchorynchus clarki mitochondrial DNA fragments amplified by Polymerase Chain Reaction (PCR). Annual Meeting of the Desert Fishes Council. November 19-20, 1992. Mesa, Arizona.
- Mabey, L. W., and D. K. Shiozawa. The planktonic and benthic microcrustacean communities in the Green River ecosystem near Ouray, Utah. Annual Meeting of the Desert Fishes Council. November 19-20, 1992. Mesa, Arizona.
- Williams, R. N., D. S. Proebstel, D. K. Shiozawa, and R. Paul Evans. Genetics and morphological evidence supporting subspecific designation of the Humboldt cutthroat trout. Annual Meeting of the Desert Fishes Council. November 19-20, 1992. Mesa, Arizona.
- Davis, D. L., D. K. Shiozawa, and R. P. Evans. The use of polymerase chain reaction for the identification of catostomid fishes of the Green River system. Annual Meeting of the Desert Fishes Council. November 19-20, 1992. Mesa, Arizona.
- *Mabey, L. F., and D. K. Shiozawa. The comparison of planktonic and benthic microcrustacean communities in a river floodplain ecosystem. 8th International Meiofauna Conference. August 9-14, 1992. University of Maryland, College Park, Maryland.
- *Evans, R. P., D. K. Shiozawa and R. N. Williams. The role of National Parks and wilderness areas in conserving genetic diversity in native cutthroat trout. Western Division, American Fisheries Society. July 13-16, 1992. Colorado State University, Fort Collins, Colorado.
- *Williams, R. N., D. K. Shiozawa and D. Proebstel. Genetic and taxonomic advances on Great Basin Cutthroat trout. Desert Trout II Workshop. April 7-9, 1992. Malheur Field Station, Malheur, Oregon.
- Kudo, J., R. P. Evans, D. K. Shiozawa, and R. N. Williams. Cutthroat trout (Onchorynchus clarki) subspecies relationships: mtDNA D-loop and ribosomal DNA sequences. Annual Meeting of the Desert Fishes Council. November 21, 1991. Death Valley, California.
- Shiozawa, D. K., R. N. Williams, R. P. Evans, J. Kudo and R. Sorenson. An overview of cutthroat trout systematics from morphology to DNA analyses: present status and future applications. Western Division of the American Fisheries Society. July 16-19, 1991. Bozeman, Montana.

- Williams, R. N., D. K. Shiozawa and R. F. Leary. Allozyme and mitochondrial DNA phylogenies of cutthroat trout: systematics and conservation biology. Western Division of the American Fisheries Society. July 16-19, 1991. Bozeman, Montana.
- Kudo, J., Y. Shen, D. K. Shiozawa, R. P. Evans and R. N. Williams. Molecular genetics and the future of trout systematics: restriction site mapping and mitochondrial and ribosomal DNA sequencing. Western Division of the American Fisheries Society. July 16-19, 1991. Bozeman, Montana.
- Kudo, J., D. K. Shiozawa, R. P. Evans and R. N. Williams. DNA sequence variation in trout. Pacific Division, AAAS. June 24, 1991. Utah State University, Logan, Utah.
- Shiozawa, D. K., R. N. Williams, R. P. Evans, J. Kudo and R. Sorenson. Cutthroat trout systematics - what have we found and where are we going? Bonneville Chapter, American Fisheries Society. February 27 - March 1, 1991. Wendover, Nevada.
- Williams, R. N. and D. K. Shiozawa. Protein electrophoresis and mitochondrial DNA generated phylogenies for cutthroat trout. Bonneville Chapter, American Fisheries Society. February 27 - March 1, 1991. Wendover, Nevada.
- Kudo, J., D. K. Shiozawa and R. P. Evans. Mitochondrial d-loop sequence variation in trout Bonneville Chapter, American Fisheries Society. February 27 - March 1, 1991. Wendover, Nevada.
- Shen, Y., R. P. Evans, D. K. Shiozawa and R. N. Williams. Restriction site and functional mapping of the mitochondrial genome of cutthroat trout. Bonneville Chapter, American Fisheries Society. February 27 - March 1, 1991. Wendover, Nevada.
- Shiozawa, D. K., R. P. Evans, and R. N. Williams. Taxonomic relationships among cutthroat trout as determined through mitochondrial DNA analysis. Bonneville Chapter, American Fisheries Society. February 21-22, 1990. Wendover, Nevada.
- Shiozawa, D. K. J. Kudo, R. P. Evans and S. Woodward. Isolation and characterization of DNA from formalin preserved fish. Annual Meeting of the Desert Fishes Council. November 14-17, 1990. Ensenada, Mexico.
- Evans, R. P., Y. Shen, R. N. Williams and D. K. Shiozawa. A restriction site map for mitochondrial DNA in cutthroat trout. Annual Meeting of the Desert Fishes Council. November 14-17, 1990. Ensenada, Mexico.
- Kudo, J., D. K. Shiozawa, R. P. Evans and S. Woodward. Sequencing of PCR amplified DNA from trout. Annual Meeting of the Desert Fishes Council. November 14-17, 1990. Ensenada, Mexico.
- Sorenson, R., D. K. Shiozawa, and R. P. Evans. Ribosomal DNA and cutthroat trout systematics. Annual Meeting of the Desert Fishes Council. November 15-16, 1989. Albuquerque, New Mexico.
- *Shiozawa, D. K., R. N. Williams, and R. P. Evans. Cutthroat trout systematics -- combining biochemical and meristic methods. Nevada Department of Wildlife Resources. January 17, 1989. Reno, Nevada.
- Shiozawa, D. K. Cutthroat trout spotting patterns -- can they be quantified? Annual Meeting of the Desert Fishes Council. November 17-18, 1988. Death Valley, California.
- Shiozawa, D. K. Presence-absence sampling in benthic research. 36th Annual meeting of the North American Benthological Society. May 17-19, 1988. Tuscaloosa, Alabama.
- Shiozawa, D. K. and R. N. Williams. Cutthroat trout systematics--a manager's dilemma. Bonneville Chapter, American Fisheries Society. February 26, 1988. Provo, Utah.
- Shiozawa, D. K. Cascading trophic interactions and the benthic link. Seminar. Utah State University. Department of Fisheries and Wildlife. February 24, 1988. Logan, Utah.
- Shiozawa, D. K. The central limit theorem and benthic sampling. 35th Annual meeting of the North American Benthological Society. May 20-22, 1987. Orono, Maine. Session Chair
- Sorenson, R., D. K. Shiozawa, and M. Rosenfeld. Does Chasmistes exist in the Upper Snake River? Annual Meeting of the Desert Fishes Council. November 20-22, 1986. St. George, Utah.
- Shiozawa, D. K. and C. C. Speas. Cascading trophic interactions in a lentic ecosystem: implications. Bonneville Chapter, American Fisheries Society. March 5-6, 1986. Logan Utah.
- Speas, C. C. and D. K. Shiozawa. Predator-mediated shifts in a lentic ecosystem--an experiment. Bonneville Chapter, American Fisheries Society. March 5-6, 1986. Logan Utah.
- Rosenfeld, M. A. and D. K. Shiozawa. Evolutionary genetics of species contact zones in the Great Basin. Annual Meeting of the Desert Fishes Council 17. November 1985. Death Valley, California.
- Shiozawa, D. K. and C. C. Speas. Trophic cascades and the benthos. American Society of Limnology and Oceanography. June 17-21 1985. University of Minnesota. Minneapolis, Minnesota.
- Speas, C. C. and D. K. Shiozawa. Trophic cascades and a benthic link. 32nd Annual meeting of the North American Benthological Society. May 23-25, 1984. Raleigh, North Carolina.

- Shiozawa, D. K. The western trout - with an emphasis on the native subspecies of cutthroat trout Utah. M. L. Bean Lecture Series. December 8, 1983. Provo, Utah.
- Speas, C.C. and D. K. Shiozawa. The reproductive life history of the leatherside chub, Gila copei, in Main Creek, Utah. Annual Meeting of the Desert Fishes Council. November 16-18, 1983. Death Valley, California.
- Barnes, J. R. and D. K. Shiozawa. Drift in Hawaiian Streams. Societas Internationalis Limnologie August 19-28, 1983. Lyon, France.
- Shiozawa, D. K. . More food from the ocean - fact or fiction; the global 2000 report to the president. Flea Market Lecture. BYU Honors Program. October 1981. Provo, Utah.
- *Shiozawa, D. K. Density independence versus density dependence in streams. Invited paper. Plenary session. 29th Annual meeting of the North American Benthological Society. April 28-30, 1981. Provo, Utah.
- Devine, M. G. and D. K. Shiozawa. The influence of littoral microhabitat on diel activity patterns of White Bass in Utah Lake. Bonneville Chapter of the American Fisheries Society. February 1-2, 1981. University of Utah, Salt Lake City, Utah.
- Devine, M. G. and D. K. Shiozawa. Net orientation of a lentic hydropsychid caddisfly. 28th Annual meeting of the North American Benthological Society. March 26-28, 1980. Savannah, Georgia.
- Shiozawa, D. K. The drift of stream stream microcrustacea in Valley Creek, Minnesota. 27th Annual meeting of the North American Benthological Society. April 18-20, 1979. Erie, Pennsylvania.
- Shiozawa, D. K. and J. R. Barnes. The life history of Tanytus stellatus and Chironomus frommeri in Goshen Bay of Utah Lake. 23rd Annual meeting of the North American Benthological Society. April 26-28, 1975. Springfield, Illinois.
- Shiozawa, D. K. Influences of brinefly control programs on the ecosystems of the Great Salt Lake. Student Originated Studies Project Reporting Meeting, National Science Foundation. December 26-28, 1972. Washington, DC.
- Shiozawa, D. K., D. S. Havertz, and L. D. Yamashita. Investigations into the susceptibility trends of Ephydra cinerea to malathion and possible influential factors. Meetings of the Utah Academy of Sciences, Arts, and Letters. Brigham Young University, Provo, Utah. Fall 1972
- Suekawa, D. M., D. K. Shiozawa, and D. S. Havertz. Evidence of anemochoric dispersal of Ephydra cinerea along the shore of the Great Salt Lake. Meetings of the Utah Academy of Sciences, Arts, and Letters. Fall 1972. Brigham Young University, Provo, Utah.
- Welker, M. C., D. S. Havertz, and D. K. Shiozawa. A study of the emergence of Ephydra cinerea on the Great Salt Lake. Meetings of the Utah Academy of Sciences, Arts, and Letters. Fall 1972. Brigham Young University, Provo, Utah.
- Nelson, D., D. K. Shiozawa, and D. S. Havertz. The flora as a factor in brinefly dispersion. Meetings of the Utah Academy of Sciences, Arts, and Letters. Fall 1972. Brigham Young University, Provo, Utah.
- Shiozawa, D. K. and D. S. Havertz. Studies on the susceptibility levels of Ephydra cinerea to malathion. Meetings of the Utah Academy of Sciences, Arts, and Letters. Spring 1972. Brigham Young University, Provo, Utah.
- Shiozawa, D. K. and D. S. Havertz. Susceptibility trends to malathion in fluctuating mosquito populations not under abatement management. Meetings of the Utah Academy of Sciences, Arts, and Letters. Spring 1971. Weber State College, Ogden, Utah.

CURRICULUM VITAE

Elbert R. Simmons

Sources:

Elbert R. Simmons interview; 20th Century Western & Mormon Manuscripts; L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University. Following citations: MSS 2996, LTPSC.

<http://www.deseretnews.com/article/541671/DEATH--ELBERT-R-SIMMONS.html?pg=all>

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: 1 October 1916, Manti, Utah

Death: 2 February 1997, Provo, Utah

Education:

BS, Utah State University, 1941

MA, Museum Methods, State University of Iowa, 1943

Graduate Work in Ornithology, Cornell University, 2 years

Graduate Work, University of Utah

Employment:

Chaplain, U.S. Navy (rank of Captain) during World War II

Teacher, Uintah High School, Vernal, Utah

Teacher, Bountiful High School, Bountiful, Utah

Teacher, Clifton High School, Clifton, Idaho

Faculty Member, Department of Zoology and Entomology, Montana State College, Bozeman, Montana, 1949-1955

Park Ranger, Bryce Canyon National Park and Zions National Park

Faculty Member, Department of Zoology and Entomology and Department of Zoology, 1956-1983.

Teaching:

Biological Techniques

Animal Biology

Ornithology

Field Studies in Natural History

Service:

Managed Stockrooms for the Department of Zoology and Entomology and Department of Zoology
Assisted in designing and building Dioramas for Museum Displays in the Grant Building at BYU
Assisted with collections in Monte L. Bean Museum

JACK W. SITES, JR.

Curriculum Vitae (updated 2 May 2016)

ADDRESS: Department of Biology, and M.L. Bean Life Science Museum
Brigham Young University
Provo, Utah 84602
work phone: 801/422-2279; email: Jack_Sites@byu.edu

BIRTH DATE/PLACE: 6 August 1951, Clarksville, TN

MARRIED: Joanne (Lawson) Sites, 26 August 1973

CHILDREN: One daughter, Hillary Leigh, born 3 June 1981

DEGREES: Austin Peay State Univ., Clarksville, TN, BS 1973
Austin Peay State Univ., Clarksville, TN, MS 1975
Texas A&M Univ., College Station, TX, Ph.D. 1980

MAJOR

INTERESTS: Herpetology, Speciation & Species Delimitation, Hybrid Zone Dynamics, Origins of Parthenogenesis, Phylogeography, Systematic Biology, Conservation & Population Genetics, Biodiversity, Integrative Taxonomy, Public Outreach

PROFESSIONAL WORK EXPERIENCE:

1. Undergraduate:
Seasonal naturalist, Tenn. Dept. of Conservation, summers of 1970, 1971.
2. Graduate/predoctoral:
Teaching asst. in Dept. Biology, Austin Peay St. Univ., 1973-75.
Vertebrate Zoologist, The Nature Conservancy - Tennessee Heritage Program, 1975-76.
Graduate research asst., Dept. Wildlife & Fisheries Sciences, Texas A&M Univ., 1976-80
3. Post-doctoral/tenure track positions:
Visiting Asst. Professor (post-doc), Dept. of Biology, Texas A&M Univ., 1980-82.
Asst. Prof. Zoology, Dept. of Zoology, and Curator of Amphibians & Reptiles, M.L. Bean Museum, Brigham Young Univ., 1982 - 86.
Assoc. Prof. Zoology, and Curator of Amphibians & Reptiles, BYU, 1986 - 92.
Maeser Professor of Integrative Biology, and Curator of Amphibians & Reptiles, BYU, 1992 - present.
4. Sabbatical leaves:
Laboratory of D.G. Buth, Dept. Biol., UCLA, Sept. 1984 (2 weeks)
Laboratory of A.R. Templeton, Dept. Biol., Washington Univ., May 1986 (1 month)
Laboratory of C. Moritz, Dept. Zool., Univ. Queensland, June-July 1988 (2 months)
Laboratory of S.K. Davis, Faculty of Genetics, Texas A & M Univ., 1991 - 92 (14 months)
Laboratory of M.A. Asmussen, Dept. of Genetics, Univ. of Georgia, June 1993 (1 week)
Laboratory of C. Moritz, Department of Zoology/Centre for Conservation Biology, Univ. Queensland, Jan. - Aug. 1997 (8 months)
Laboratory of Dr. Dale Roberts, Department of Zoology, Univ. of Western Australia, Sept. - Oct. 2007 (4 weeks)

LANGUAGE SKILLS: basic conversational in Spanish; some reading ability in Portuguese

FIELD EXPERIENCE:

US - Extensive for southeast, including Southern Appalachians, cypress swamps, and Everglades areas; extensive for coastal, thorn-scrub, and Chihuahuan desert areas of Texas; canyon, desert, & montane areas of the western US; 3 weeks in Hawaii; 10 days in Alaska

FOREIGN - extensive (1977-1991) for desert, montane, and tropical parts of Mexico; 5+ weeks in Venezuela (June 1980, Feb. 2001 & 2002); ~ 4 weeks in Ecuador- two trips to Galapagos Islands (Dec. 1985, Feb. 2004; 1 week in Amazonia [2014]), 3 weeks on mainland (Aug. 1988, May 2014); ~14 months in Australia; (October 1986, June-July 1988, Jan. 1994, Jan.-August 1997; Sept.-Oct. 2007); 10 days in New Zealand (Dec. 1993); 8 days in Panama-STRI/BCI (January 1988); 2 weeks in Costa Rica (July 1990, Sept. 2003); ~ 7 months in Brazil, primarily in Amazonia and Cerrado regions, limited time in Pantanal (~ 14 trips, 1991 - present); Africa (5 weeks [Namibia, South Africa], June-July 2005); French Guiana (1 week, May 2006); Argentina (~14 weeks; 2003, 2007, 2009, 2011); Chile (6+ weeks, 1996, 2005, 2007, 2010); Peru (~ 3 weeks, May 2014).

TEACHING EXPERIENCE:

1. Texas A&M University (1980 - 82):

Biol. 107 (Vertebrate Zoology, 3 credits).
Biol. 113 (General Biology, 3 credits).
Biol. 114 (General Biology, 3 credits).
Biol. 318 (Chordate Anatomy, 4 credits).

2. Brigham Young University (1982 - present):

Biol. 100 (Life Sciences for Non-majors, 3 credits)
Zool. 220A (Animal Diversity [vertebrate sectio], 4 credits).
Biol. 220 (Biodiversity [once], 2 credits)
Zool. 363 (Comparative Vertebrate Anatomy [once], 4 credits).
Zool. 445 (Herpetology, 4 credits).
Zool. 470 (Conservation Biology, 3 credits).
Zool. 475 (Evolutionary Biology, 3 credits).
Zool. 549R (Advanced Topics in Evolutionary Genetics [team-taught], 4 credits).
Zool. 559R (seminars in Conservation Biology, Molecular Evolution, Speciation; field courses: Biodiversity of Appalachia [1999], & Tropical Biology - Brazil [2000], French Guiana [2006]).
Zool. 604 (Phylogenetic Systematics, 3 credits).
Zool. 605 (Molecular Methods in Systematics & Population Biology [team-taught], 5 cr.).

GRADUATE/UNDERGRADUATE STUDENT THESIS RESEARCH:

Current/graduated PhD students (n = 13):

Derek Tucker 2011 – present; BYU graduate research fellowship [1 yr; \$15,000]; NSF-DDIG \$15,428 (recommended; will begin May 2016)

Perry Wood 2011 – present; BYU Asian Studies research fellowship [2 yr; \$15,000/yr]; NSF-DDIG (\$16,335)

César Aguilar 2010 – present; PI on National Geographic Society award [\$15,000]; BYU graduate research fellowship [1 yr; \$15,000]; NSF-DDIG (\$16,362)

Luke Welton 2012 - 2015; BYU “HIDRA” fellowship [3 y; \$25,000/yr]

Fernanda Werneck 2007 – 2011; CAPES/Fulbright pre-doctoral fellow; grants from Idea Wild (\$750), Neotropical Grasslands Conservancy (\$500), Society for the Study of Amphibians and Reptiles (\$500); National Geographic (\$18,800); Society of Systematic Biologists (\$1,650); NSF-DDIG (\$14,970)

Arley Camargo 2006 – 2011; “Species Trees and Species Delimitation with Multilocus Data and Coalescent-based Methods: Resolving the Speciation History of the *Liolaemus darwini* Group (Squamata, Tropiduridae)”]; SSB graduate student research award (\$1,350; 2008); BYU University research fellowship (\$6,000; 2008); College of Life Sciences Julie Greenwell tuition award (\$1,700; 2008-09); BYU graduate mentoring award (\$5,000; 2009-10); BYU Life Sciences Needs-based Scholarship (\$1000, 2009); SSAR graduate research award (\$500, 2009)

Edgar Benavides 1999 - 2006; awarded support to attend Summer Institute in Statistical Genetics, NCSU [1999]; Bodega Bay Phylogenetics Workshop [UC-Davis]; graduate student research award - Society of Systematic Biologists [2002]; award for NSF-sponsored Molecular Evolution Extended Workshop [Woods Hole, MA; both in 2002]; BYU graduate research fellowship 2003-04 [\$6000]; BYU Larsen Scholarship 2003-04 [\$1000]; BYU Graduate Mentoring Award 2004-05 [\$5000]; B.F. Harrison Scholarship 2004-05 [\$1000]

Jonathan Marshall 1997 – 2004; runner-up in Herpetologists’ League competition for best student paper, La Paz, Mexico [2000]; BYU Jessup Award [\$1000, Zoology] - 2001; BYU travel award to present paper at “Young Systematists Forum”, British Museum of Natural History (2001); BYU graduate research fellowship 2002-03 [\$5000]; BYU graduate mentoring award 2003-04 [\$4000]; Conservation Genetics workshop fellowship 2004 [\$600; declined]; post-doc in ’04 with Dr. J. Powell, Yale Univ.

Mariana Morando 2000 – 2004; CONICET pre-doctoral fellow (2000-02) on leave from Universidad Nacional de Tucumán, Argentina; award to attend NSF-sponsored Molecular Evolution Workshop at Woods Hole, MA [2002]; SSAR student travel award [2002; \$200]; runner-up in Herpetologists’ League competition for best student paper, Kansas City, MO [2002]; BYU Graduate Fellowship 2003-04 [\$4500]; BYU Beck Award 2003-04 [\$1000]

Alison Whiting 1999 – 2003; NSF pre-doctoral fellow, graduate student research award - Society for Systematic Biology [2000]; BYU graduate fellowship 2001-02 [\$5000]; BYU Cottam award (BYU, \$500 in 2002); post-doc with Dr. K. Crandall, BYU

Nelson Jorge da Silva, Jr 1991 - 95; CNPq pre-doctoral fellow [Brazil; 4 yr stipend], Beck Award winner (BYU, \$500 in 1993); Roosevelt Award (American Museum of Natural History, 1994); Sigma Xi Award for best dissertation in BYU College of Biology – Agriculture (1995)

Elisabeth Arévalo 1988 - 1992; DGAPA pre-doctoral fellow [Mexico; 4 yr stipend], C. Cottam award winner (BYU, \$500 in 1988), 1989; travel award from Herpetologists' League to attend First World Congress of Herpetology, Canterbury, England (Sept. 1989).

Kent M. Reed 1986 - 1991; co-chaired with I.F. Greenbaum (Texas A & M University).

Current/graduated MS students (n = 9):

Pamela Thompson 1985; BYU Sigma Xi Award, best MS thesis in Bio-Ag (1985); Wilks' Award for best student paper, Southwest. Assoc. Nat. meetings in 1985

Calvin Porter 1986; Beck Award (BYU, 1985; \$1,000); BYU Sigma Xi Award, best MS thesis in

Biol.- Ag. (1986); runner-up for Wilks' Award, Southwest. Assoc. Nat. in 1986
Jeffery Wilkinson 1989
Mark Grover 1992; co-chaired with B.A. Maurer; Cottam Award (BYU 1990); MS thesis manuscript won SSAR Kennedy Student Award for best paper published in Jour. of Herpetology (in 1996)
Dan Mink 1993; Cottam Award (BYU 1992; \$1,000); BYU Sigma Xi Award, best MS thesis in Biol.- Ag. (1993)
Dennis Dosselman 1997; D. Eldon Beck Award (BYU 1996; \$1000)
David Bos 2000; Hanks Award (BYU 1999; \$1,000)
Dean Leavitt 2004 (co-chaired with K. Crandall; BYU graduate fellowship [\$4,500, 2004]; Roosevelt Award [AMNH, \$1,500; 2004])
Martha Yoke 2004 – 2007; BYU graduate research fellowship 2005-06 [\$4500]; D. Eldon Beck Scholarship (Dept. InBio) 2005-06 [\$1000])

Honors Undergraduate theses:

Kim Christiansen. 1991. (co-chaired with Dr. M.J. Kaliszewski).
Irene Goyenechea Mayer-G. 1993. (undergraduate research thesis completed at Universidad Nacional Autónoma de México, member with Dr. O. Flores-Villela).
Doug Creer. 1994. (co-chaired with Dr. D. Simmons [Chemistry]).
Bruce Christensen. 1998.
Dean Leavitt. 2002. (co-chaired with Dr. D. McClellan)

Undergraduate Extended Mentoring Experiences:

- 85+ students in laboratory and short-term field experiences over the past 34 yrs
 - 35+ students employed as curatorial assistants in the MLMB over the past 34 yrs
Bruce Christensen, Alison Swindle; 1998, arranged through personal contacts for both to spend 2.5 months as volunteer research assistants to graduate students at Univ. of Queensland and Univ. of Canberra; both students worked in the Northern Territory (Daly River) & Queensland.
David Gonzales, Mindy Wallentine; 2000, two-week field course in Tropical Biology, taught at Trombetas Biological Reserve, Para, Brazil.
Cameron Turner; 2004, 10 days in Amazonia (Trombetas Reserve, Brazil).
Shelly Hart, Monty Hawkins, Limb Hapairai, Travis Moss, & Tasia Robertson; three weeks in French Guiana, May-June 2006 (with Drs. Brice Noonan, Jenny Pramuk, & Riley Nelson).
Monty Hawkins, Ryan Otterson, Paige Alsbury, Sarah Preece, Danny Knechtel, & Katie Temus, Casey Day, David Sharrah, Nicole Koontz, Tabitha Brown, Leslie Hardman; PIRE exchange students in 2007, 2008, 2009, & 2011 (10 weeks in Argentina & Chile)
Greg Taylor; ORCA award (2015) – Evolution of sexual dimorphism in Corytophanid lizards, 18 days in Mexico (2015); 3 weeks in Gabon (2016)
Randy Klabacka; 2014 – 16; NSF-REU supplement; 2 weeks in Costa Rica (2014) + GABI project; ORCA award (*Draco* study); 2 weeks in Thailand (2016)
Skylar Black; 2015 – spent 23 days collecting lizards in Peruvian Andes (2015)
Megan McGhie; 2015-16; ORCA award for transcriptome studies of gene expression in viviparous lizards
Ben Bay; 2015-16; ORCA award to study impact of climate change on terrestrial vertebrate biodiversity relative to current “coverage” of Ecuador’s protected areas network

Off-campus Graduate Thesis Committees:

Fernando Mendoza-Quijano. 1995. MS, UNAM [Mexico] (chair, Oscar Flores-Villela).
David Orange. 1997. Ph.D., Univ. of Nevada-Las Vegas (chair, Brett Riddle).
Irene Goyenechea Mayer-G. 2001. Ph.D., UNAM [Mexico] (chair, Oscar Flores-Villela).
Lara Carroll. 2001. Ph.D., Univ. of Utah (chair, Wayne Potts).

POST-DOCTORAL RESEARCH ASSOCIATES:

Dr. Seifu Seyoum (1990-92; shared with M.J. Kaliszewski; currently at Florida Fish and Wildlife Conservation Dept. - Florida Marine Research Inst., St. Petersburg, FL)
Dr. Miriam Benabib-Nisenbaum (Oct. 1994 - Oct. 1996, on leave from the Centro de Ecología, Universidad Nacional Autónoma de México, MEXICO)
Dr. Oscar Flores-Villela (Oct. 1994 - Dec. 1996, on leave from the Museo de Zoología, Facultad de Ciencias, Universidad Nacional Autónoma de México, MEXICO)
Dr. Karl Kjer (1993-96; 1996 – 2014 – Professor tenured at Dept. of Ecology & Evolutionary Biology, Rutgers Univ., New Brunswick, NJ; 2014 – present; Endowed Chair [Entomology], UC-Davis)
Dr. Elizabeth Sinclair (1999 - 2004; shared with Dr. K.A. Crandall; currently at Royal Botanical Garden of Western Australia, Perth)
Dr. Allan Arndt (1999 - 2000; currently at Dept. of Biology, University College of Fraser Valley, British Columbia, CANADA)
Dr. Katia Cristina M. Pellegrino (1999 - 2001; shared with Dr. M.T. Rodrigues, currently at Universidade de São Paulo, Santa Clara campus, BRAZIL)
Dr. Jessica Maisano (6 months [July – December 2002; High-Resolution X-ray CT Facility, Dept. of Geology, UT Austin) to scan and image process 60+ squamate taxa and to prepare the resulting imagery for posting on the Digital Library of Morphology (www.digimorph.org)
Dr. Luciano Avila (Sept. 2000 - 2004, now at CENPAT, Puerto Madryn, Chubut, ARGENTINA)
Dr. Devon Pearse (2001 – 2003; now at National Marine Fisheries Service research lab [salmonid conservation genetics], Santa Cruz, CA)
Dr. Pedro Victoriano (Sept. 2004 – Sept. 2005; Assoc. Professor of Biology, Univ. of Concepción, Concepción, CHILE)
Dr. Jennifer Pramuk (Sept. 2004 – Oct. 2006; currently Curator of Herpetology, Hyde Park Zoo, Seattle, WA)
Dr. Brice Noonan (Sept. 2004 – Aug. 2006; currently Assoc. Professor of Biology, University of Mississippi, Oxford, MS 38677)
Dr. Dan Mulcahy (1 Oct. 2006 – 31 Aug. 2009; currently at Div. of Herpetology, U.S. National Museum)
Dr. Edgar Benavides (Feb. 2007 – June 2009; currently Dept. of Biology, Yale Univ.)
Dr. Frank Fontanella (Sept. 2009 – Aug. 2011; currently at Eastern Georgia Univ.)
Dr. Juan C. Santos-Garcia (Sept. 2014 –

SABBATICAL/SHORT-TERM VISITORS:

Dr. Carl S. Lieb (Sept. 1983 - Aug. 1984, on leave from Dept. of Biological Sciences, Univ. of Texas at El Paso, TX)
Dr. Robert L. Bezy (March-April 1985, on leave from the Division of Herpetology, Los Angeles County Museum of Natural History, CA)
Maria Angeles Aguilar-S. (Jan.-Feb. 1986, on leave from the Departamento de Biología y Ciencias Salud, Universidad Autónoma Metropolitana, MEXICO)

Prof. Madeleine Lamborot (Sept.-Oct. 1992, on leave from the Departamento de Ciencias Ecologicas, Universidad de Chile, Santiago, CHILE)

Dr. James W. Archie. (Jan.-Feb. 1994, on leave from the Department of Biology, California State University at Long Beach, CA)

Dr. Luis Monjeló (Aug. 2001, Professor of Genetics, Federal Univ. of Amazonas, Manaus, BRAZIL)

Dr. Izeni Farias (Oct.-Nov. 2002, Asst. Professor of Biology, Federal Univ. of Amazonas, Manaus, BRAZIL)

Vitor Cantarelli (intermittently throughout 2002-03)

Dr. Pedro Victoriano (May–June 2003, Assoc. Professor of Biology, Univ. of Concepción, Concepción, CHILE)

Dr. Vitor Cantarelli (Aug-Oct 2003)

Dr. Katia Pellegrino (Jan-Feb 2004, Asst. Professor, Catholic Univ. of Goias, BRAZIL)

Dr. Aurelio Ramirez (June 2004, Assoc. Professor of Biology, UNAM – Pachuca, MEXICO)

Biol. Martha Calderón (Oct.-Nov. 2004, PhD student, UNAM [MX])

Dr. Neil J. Heideman (Nov. 2006 – April 2007; Fulbright Scholar, Univ. of the Free State, Bloemfontein, South Africa)

Dr. Lauren Chan (March – June 2008; PIRE-supported visiting scholar, shared between Dr. Leigh Johnson & Dr. Jack W. Sites, Jr; assisted in development of genetic markers for plants & lizards)

Dr. Katia Pellegrino (June-July 2008; short-term leave from Univ. São Paulo, Brazil)

Drs. Mariana Morando & Luciano Avila (May – August 2008; Fulbright Scholar (MM), CENPAT, Puerto Madryn, Argentina)

Dr. Mariana Morando (June – July 2009, 2010, 2011)

Dr. José Nuñez (June – August 2009)

Drs. Teresa Pires-Hoogmoed/Marinus S. Hoogmoed (June – October 2009)

PhD student Rodrigo de Mello (May – Sept. 2013)

PhD student Rodrigo Maia D. Ledo (May – Oct. 2014)

MS students Flavia Mol Lanna & Emanuel Fonseca (Aug. – Nov. 2015)

Drs. Luciano J. Avila & Mariana Morando (April 2014 – Oct. 2015)

Dr. Guarino Colli (July – Dec. 2015)

PROFESSIONAL ACTIVITIES:

Reviewed manuscripts for the following journals: *Acta Zoologica Mexicana*, *Amazoniana*, *American Museum Novitates*, *Amphibia-Reptilia*, *Annals Missouri Botanical Garden*, *Australian Journal of Zoology*, *BioMed Central – Evolutionary Biology*, *Biochemical Genetics*, *Biological Conservation*, *BioScience*, *Boletim Museu Paraense Emílio Goeldi*, *Ecological Applications*, *Canadian Journal of Zoology*, *Copeia*, *Ecology*, *Evolution*, *Frontiers in Zoology*, *Genetics*, *Great Basin Naturalist*, *Herpetologica*, *Herpetological Review*, *Israel Journal of Zoology*, *Journal of Animal Conservation*, *J. Experimental Zoology*, *J. Heredity*, *J. Herpetology*, *J. Mammalogy*, *J. Molecular Evolution*, *J. Utah Acad. Sci.*, *Molecular Biology and Evolution*, *Molecular Ecology*, *Molecular Phylogenetics and Evolution*, *Nature*, *Occasional Papers--The Museum (Texas Tech Univ.)*, *Papéis Avulsos Zoológicos (São Paulo)*, *PLoS ONE*, *Proc. Nat. Acad. Sci. USA*, *Royal Soc. London - Ser. B*, *Scientia Guianae*, *Science*, *Systematic Biology*, *Texas Journal of Science*, *Trends in Ecology and Evolution*, and *Zoological Journal of the Linnaean Society*.

Ad-hoc reviewer of grant proposals for the: Australian Research Council, Guggenheim Foundation,

National Science Foundation (programs in Biological Research Collections, Conservation Biology, Doctoral Dissertation Improvement, Ecological & Evolutionary Physiology, International, Instrumentation/Instrument Development, Population Biology, Survey & Inventory, and Systematic Biology), Colsciencias (Colombia), Israel National Science Foundation, Swiss National Science Foundation, National Geographic Society, March of Dimes-Birth Defects Foundation, Research Corporation (Cottrell College Grant Program), Rufford Small Grant Program (UK), Smithsonian Institution, Natural Sciences and Engineering Research Council of Canada, and the Wellcome Trust (UK).

Awarded support to attend NSF-sponsored "Molecular Evolution Workshop" at the Marine Biological Laboratories, Woods Hole, MA (August, 1993)

Grant panel service:

- 1) NSF - Research Training Centers (November 1989)
- 2) NSF - Systematic Biology (April 1990)
- 3) NSF - Systematic Biology (October 1990)
- 4) NSF - Biotic Survey & Inventory (Jan. 1991)
- 5) NSF - Biotic Survey & Inventory (Feb. 1992)
- 6) DOE - Program for Ecosystem Research (Nov. 1993)
- 7) Canon National Parks Science Scholars Program for the Americas (July 2002)

Provided external review for faculty tenure/promotion committees at the following institutions:

Dr. Harry Lessios, Smithsonian Tropical Research Institute (1988)
Dr. Howard Snell, Dept. of Biology, Univ. of New Mexico (1990)
Dr. Matt White, Dept. of Biology, Ohio Univ. (1990)
Dr. Scott Davis, Genetics Program, Texas A & M Univ. (1991)
Dr. Robert Bezy, Div. of Herpetology, LA County Museum of Natural History (1991)
Dr. David Green, Dept. of Biology, McGill Univ. (1992)
Dr. David Mindell, Dept. of Biological Sciences, Univ. of Cincinnati (1992)
Dr. Robert Murphy, Ichthyology & Herpetology, Royal Ontario Museum (1992)
Dr. Tom Dowling, Dept. of Zoology, Arizona State University (1993)
Dr. Priscilla Tucker, Dept. of Biology, Univ. of Michigan (1994)
Dr. David Good, Dept. of Zoology and Physiology, Louisiana State Univ. (1996)
Dr. Stuart Calhoun, Dept. of Biology, Buffalo State College (1996)
Dr. Allan Larson, Dept. of Biology, Washington Univ. (1997)
Dr. Robert Murphy, Ichthyology & Herpetology, Royal Ontario Museum (1997)
Dr. Scott Davis, Genetics/Animal Science Programs, Texas A & M Univ. (1998)
Dr. Tom Dowling, Biology, Arizona State University (1998)
Dr. David Hillis, Museum of Comparative Zoology, Harvard (1999)
Dr. David Hillis, Museum of Vertebrate Zoology, UC-Berkeley (1999)
Dr. Charles J. Cole, Senior Curator in Herpetology, American Mus. Nat. History (2000)
Dr. John J. Wiens, Asst. Curator of Herpetology, Carnegie Museum Nat. History (2001)
Dr. Lee Fitzgerald, Asst. Curator of Herpetology and Asst. Professor of Wildlife and Fisheries Sciences, Texas A & M University (2001)
Dr. Paul Chippindale, Dept. of Biology, University of Texas at Arlington (2001)
Dr. Jack Sullivan, Dept. of Biological Sciences, Univ. of Idaho (2001)
Dr. Brett Riddle, Dept. of Biological Sciences, Univ. Nevada - Las Vegas (2001)

Dr. Howard Snell, Dept. of Biology, Univ. of New Mexico (2001)
 Dr. Chris Schneider, Dept. of Biology, Boston Univ. (2003)
 Dr. Trip Lamb, Dept. of Biology, East Carolina Univ. (2003)
 Dr. Todd Jackman, Dept. of Biology, Villanova Univ. (2004)
 Dr. Fred Janzen, Dept. of Ecology & Evol. Biol., Iowa St. Univ. (2004)
 Dr. Dean Adams, Dept. of Ecology & Evol. Biol., Iowa St. Univ. (2005)
 Dr. Joseph Bernardo, Dept. of Biology, College of Charleston (3rd yr review, 2006)
 Dr. Jim McGuire, Museum of Vertebrate Zoology/Dept. of Integrative Biology, Univ. of California-Berkeley (2007)
 Dr. Paul Chippindale, Department of Biology, University of Texas at Arlington (2007)
 Dr. Tod Reeder, Department of Biological Sciences, San Diego State University (2007)
 Dr. Leslie Rissler, Department of Biological Sciences, Univ. of Alabama (2008)
 Dr. Jason Bond, Dept. of Biological Sciences, East Carolina Univ. (2009)
 Dr. Jeremy Searle, Dept. of Ecology/Evolutionary Biology, Cornell Univ. (2009)
 Dr. Kelly Zamudio, Dept. of Ecology/Evolutionary Biology, Cornell Univ. (2009)
 Dr. W. Ron Heyer, Senior Curator of Herpetology, U.S. National Museum (2011)
 Dr. Rich Glor, Department of Biology, Univ. Rochester (2011)
 Dr. Tracy Tuberville, Savannah River Ecology Laboratory (2013)
 Dr. Bryan Carstens, Dept. Ecology/Evolution/Organismal Biology, Ohio State Univ. (2013)
 Dr. David Weisrock, Dept. Biology, University of Kentucky (2013)
 Dr. Chris Schneider, Dept. Biology, Boston University (2014)
 Dr. Neil Heideman, Dean of Natural and Agricultural Sciences, University of the Free State, Bloemfontein, South Africa (2014)
 Dr. Emily Moriarty Lemmon, Dept. of Ecol./Evol. Biol., Florida State Univ. (2015)
 Dr. Rafe Brown, Dept. of Ecol./Evol. Biol. & Biodiversity Institute, Univ. Kansas (2015)
 Dr. Anna Carnaval, Dept. Biological Sciences, City College of New York (2015)

Expert witness for the Southern Utah Wilderness Alliance, in a case against the Bureau of Land Management, U.S. District Court, Salt Lake City, UT (Aug. - Sept. 2001)

Committee Service for Brigham Young University:

I. Department assignments:

- Seminars (fall 1983--spring 1987).
- Professional Development (fall 1986--fall 1990).
- Search Committee; Population Biology/Phylogenetic Systematics (fall 1988).
- 10 yr. Evaluation -- prepared "Mission Statement" for Zoology (1988 - 1989)
- Rank Advancement (fall 1993 - 2006)
- Search Committee; Animal Physiology (fall 1993)
- Searches; Molecular Biology (member) & Population Genetics (chair, fall 1994)
- Zoology Graduate Program (1995 - 1998)
- Zoology Rank Advancement (chair, 2000 - 2003)
- Integrative Biology, Restructuring (Sept. 2001 – 2003)
- Integrative Biology, Executive (Sept. 2001 – Aug. 2006)
- Integrative Biology, Leadership Council (Sept. 2001 – Aug. 2006)
- Assistant Chair, Integrative Biology (Sept. 2001 – Aug. 2006)
- Assessment Committee (Sept. 2008 – present)
- several new faculty mentoring committees (K. Crandall, M. Whiting, L. Johnson, J. Johnson)

[chairs]; D. McClellan, S. Peck, J. Kauwe, R. Koide)

II. College/University assignments:

- representative on BYU Chapter Sigma Xi Committee (fall 1986--fall 1989).
- Systematics Resources Committee (chairman)--drafted development plan for systematics research collections housed in the M.L. Bean Life Science Museum (1990 - 2002).
- Search Committee; Director of Bean Museum (fall 1993)
- Executive Committee, M.L. Bean Museum (fall 1994 - 2004)
- Conservation Biology (1995 - present; chair, 2000 - 2002)
- University Graduate Council (1997 - 2000)
- Sant Fellowship board of reviewers (2000 – present)
- University Sponsored Research Award Committee (2001 - present)
- Biodiversity course content committee (2002 – present)
- Dean's search committee – College of Biology-Agriculture (2004-05)
- University Academic Unit Review committee (2004 – 2008)
- Associate Director of Research & Collections, M.L. Bean Life Science Museum (Sept. 2006 – 2011)
- Life Sciences PD Committee (representing Biology, Sept. 2006 – 2009)

Extramural Professional Committee Assignments:

IUCN Iguana Specialist Group, and wrote the "Iguanine Systematics" section for the Conservation Action Plan for West Indian iguanas (*Cyclura* and *Iguana delicatissima*); Dr. Allison Alberts, compiler/editor (1993 - 98).

Scientific Advisory Board for the Komodo Monitor Conservation Program sponsored by the Smithsonian National Zoological Park, to assess research proposals dealing with population genetic issues regarding management of the Komodo Monitor; Dr. James Murphy, coordinator (1996 - 2000)

Spotted Frog Technical Advisory Group, to advise the Utah Division of Wildlife Resources in implementing conservation/recovery plan for the Columbia Spotted Frog (*Rana luteiventris*) (1997 – 2003)

Panel member for the American Zoo & Aquarium Komodo Dragon Species Survival Group, Zoological Society of San Diego (2003 – 2005)

IUCN/SSC Tortoise and Freshwater Turtle Specialist Group (TFTSG) science advisory panel (2003 – 2006)

Utah Division of Wildlife Resources Amphibian and Reptile Rule Working Group (2005 - present)

SOCIETY AFFILIATIONS:

American Association for the Advancement of Science (elected AAAS Fellow, 1998)

American Society of Ichthyologists & Herpetologists (member of Gaige Award Committee for 1983-84 and 1984-85, chairman for 1985-86 and 1986-87; Board of Governors [BOG], 1988-98; Editorial Board, 1991-92)

Chelonian Research Foundation

Herpetologists' League (life member)

Molecular Ecology (Editorial Board, 2006-2009)

Molecular Phylogenetics and Evolution Society
National Center for Science Education
Society for the Study of Amphibians and Reptiles (Nominating Committee, 2004 – present)
Society for the Study of Evolution (Associate Editor, 1994 - 1997)
Society of Systematic Biologists (Council Member, 1998 - 2001; Assoc. Editor, 2001-2004; President 2014)
The Nature Conservancy (life member)

AWARDS/HONORS (off campus = **bold**):

Spring 1980 - **Wilks' Award for best student paper**; Southwest. Assoc. of Naturalists, New Mexico St. Univ., Las Cruces, NM.
Fall 1987 - Outstanding Achievement and Service Award by Dept. of Zoology, BYU
Fall 1990 - Karl G. Maeser Research and Creative Arts Award (a \$3500 unrestricted research grant, 1990-91); granted by BYU across campus-wide nominations
Fall 1990 – BYU Young Scholars Award (\$5000/yr research award, for 3 yrs, 1990-93)
Spring 1992 - **Alfred P. Sloan Foundation Fellowship** (sabbatical supplement - Molecular Studies of Evolution); long-term leave to lab of S.K. Davis; Texas A & M Univ
Summer 1993 - **NSF support for "Molecular Evolution" workshop, Woods Hole, MA.**
Fall 1995 – BYU Professorship (\$3000 research award), College of Biology-Agriculture
Fall 1998 - **elected to rank of Fellow, American Association for the Advancement of Science**
Fall 1999 – BYU College Creative Achievement Award (\$2000 research award)
Fall 1999 - BYU Sponsored Research Award, Office of Research and Creative Activities
Spring 2000 - **Phi Kappa Phi Academic Achievement Award**, Austin Peay State University
Fall 2000 - Outstanding Achievement and Service Award by Dept. of Zoology, BYU, (\$1100 honorarium)
Fall 2002 - Karl G. Maeser Distinguished Faculty Award (BYU's highest honor)
Fall 2003 – John A. Widtsoe Fellowship (College of Life Sciences; 2 yrs; conservation projects in Latin America)
Fall 2009 – Jesse Knight University Professorship (BYU; 5 yr award recognizing outstanding scholarship; \$7,500 unrestricted research budget/yr)
Fall 2011 – Thomas L. Martin Professorship (College of Life Sciences; 5 yr award recognizing outstanding scholarship; \$3,000 unrestricted research budget/yr)

MAJOR GRANTS (peer-reviewed programs in **bold**):

Spring 1985 - \$59,000 – **NSF: Systematic Biology Program**: "Population Cytogenetics of Selected Chromosome Races of *Sceloporus grammicus* (Sauria, Iguanidae) in Central Mexico" (J.W. Sites, Jr., PI, BSR 85-09092; 01/09/85 – 31/08/87).

Winter 1989 - \$30,800 - Colorado River Municipal Water District (Texas) for "Population structure and genetic variation within and among fragmented subpopulations of the Concho Water Snake, *Nerodia harteri paucimaculata*". (01/09/89 – 31/08/91).

Winter 1989 - \$190,000 (+ \$2500 REU award) – **NSF: Systematic Biology**: "Phylogenetic relationships, population structure, and hybrid zone dynamics among central Mexico chromosome races of the *Sceloporus grammicus* complex (Iguanidae)". (BSR 88-22751; J.W. Sites, Jr., PI, with I.F. Greenbaum and S.K. Davis as Co-PIs Texas A & M Univ., 01/05/89 – 30/10/92).

Spring 1992 - \$13,770 – **A. P. Sloan Sabbatical Fellowship** for Molecular Studies of Evolution, "Molecular Systematics and Zoogeography of the Iguanidae." (grant SME 92-1-4, senior fellowship to J.W. Sites, Jr., 01/05/92 – 30/04/93).

Spring 1992 - \$405,781 – **NSF: Systematic Biology + USAID Biodiversity Support Program** (plus \$5,000 REU and \$9,700 ROA awards secured for 1993-94 academic year): "Molecular systematics and tests of monophyly within the small-bodied, small-scaled radiation of *Sceloporus* (Phrynosomatidae)." (DEB 91-19091; J.W. Sites, Jr., PI, with J.W. Archie & O. Flores, Co-PIs; 01/07/92 – 30/06/96; budget includes **\$140,000 “Biodiversity Support” funds from the U.S. Agency for International Development**).

Summer 1994 - \$10,000 – **NSF: Doctoral Dissertation Improvement Award (DDIG)**: "Phylogenetic Relationships and the Evolution of Venoms in the South American 'Triad' Coral Snakes (*Micrurus*, Elapidae)". (DEB 94-12285, J.W. Sites, Jr. and N.J. da Silva, Jr.; 01/09/94 – 31/08/95).

Spring 1995 - \$23,000 - UT Division of Wildlife Resources/U.S. Bureau of Land Management; "Small vertebrates of the Book Cliffs Conservation Area." (J.W. Sites, Jr., and D.S. Rogers, 01/05/95 – 30/04/97).

Summer 1995 - \$1,340,000 - FURNAS (Brazilian Power Company); “Resgate do Fauna; UHE Serra da Mesa” (PI, N. J. da Silva, Jr., Brazilian Co-PIs, R. Brandão, L.F.B. de Oliveira, M. Rodrigues, & D. Teixeira; US Co-PIs, J.W. Sites, Jr., D.S. Rogers, N.F. Johnson, & R.W. Holzenthal; 01/05/95 – 31/12/99).

Spring 1996 - \$27,700 from BYU for long-term sabbatical leave to the Dept. of Zoology/Lab. of Conservation Genetics, Univ. of Queensland, Brisbane, AUSTRALIA (Jan. - Aug. 1997).

Winter 1997 - \$14,221 – **NSF: International Programs**: "Conservation Genetics of Amazon River Turtles, Genus *Podocnemis* (Pelomedusidae)"; Laboratory of Conservation Genetics and Dept. of Zoology, Univ. of Queensland, Brisbane, AUSTRALIA (INT 96-02993, J.W. Sites, Jr., PI, 01/01/97 – 31/08/97).

Fall 1998 - \$200,000 (plus \$21,992 in REU awards) – **NSF: Population Biology Program**: “Population structure, nest-site fidelity, and conservation genetics in the Giant Amazon River Turtle (*Podocnemis expansa*; Pelomedusidae)”; DEB 98-15881 (J.W. Sites, Jr., PI; 01/09/99 – 31/08/03).

Winter 1999 - \$56,400 – **Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP, São Paulo, Brazil)**, for “Relações filogenéticas e origem da partenogênese em espécies de lagartos do gênero *Leposoma* (Squamata, Gymnophthalmidae) das florestas Amazônia e Atlântica: Análise de sequências do DNA mitocondrial e nuclear”; project no. 13292-8 (M. Rodrigues, PI, K. Pellegrino and J.W. Sites, Jr., Co-PIs, 03/05/99 - 03/04/01).

Winter 2000 - \$8,350 from the Utah Division of Wildlife Resources and the U.S. Fish and Wildlife Service; “Conservation genetics and phylogeography of the Columbia Spotted Frog (*Rana luteiventris*)”; (J.W. Sites, Jr., 01/01/00 – 31/07/00).

Fall 2001 - \$9,000 from the National Fish and Wildlife Foundation; “Phylogenetic relationships and species boundaries in the endangered Shenandoah salamander (*Plethodon shenandoah*) relative to *P. shenandoah*-like isolates, and other small eastern salamanders of the genus *Plethodon*”; (J.W. Sites, Jr. and R. Highton, 01/09/01 – 31/08/02).

- Fall 2001 - \$328,000 (plus \$18,000 in REU awards, and one \$10,000 extension) – **NSF: Systematic Biology**: “The phylogeny of Xantusiidae, and its placement within Scleroglossa (Reptilia: Squamata)”; DEB 01-32227 (J.W. Sites, Jr., PI; J.A. Gauthier and R.L. Bezy, Co-PIs; 01/06/02 – 31/05/08).
- Fall 2001 - \$18,000 from the BYU Office of Research and Creative Activities; “Molecular systematics at the species interface - a research proposal for mentoring BYU undergraduate students”; J.W. Sites, Jr., PI; K.A. Crandall & L. Johnson, Co-PIs; (01/01/00 - 12/31/01).
- Fall 2001 - \$167,133 – **Fondo Nacional de Ciencia, Tecnología, e Innovación (FONACIT, Venezuela)**; “Programa dirigido a la conservación de los dos grandes reptiles de la cuenca del Rio Orinoco, *Crocodylus intermedius* y *Podocnemis expansa*. Cría en cautiverio, reforzamiento de poblaciones y estudios de variabilidad genética”, award # 8220; O. Hernandez, PI, J.W. Sites, Jr., Co-PI (with 7 Venezuelan investigators); (01/09/02 – 31/08/05).
- Winter 2002 - \$26,050 from BYU Office of Research and Creative Activities (ORCA), “Evolutionary genetics - a research proposal for mentoring BYU undergraduate students”, D. McClellan, PI; J.W. Sites, Jr., Co-PI; (01/01/02 – 31/12/02).
- Spring 2002 - \$10,006 – **NSF: DDIG**: “Limb Loss and Phylogenetic Relationships in Southern African Scincine Lizards”. (DEB 02-06362, J.W. Sites, Jr. and A.S. Whiting; 01/06/02 – 31/08/03).
- Fall 2002 - \$225,000 – **NSF: Division of Biological Infrastructure**: “Systematic Biology and Bioinformatics - Research Experiences for Undergraduates Site at BYU”; (DBI 01-39501; D.S. Rogers, PI; J.W. Sites, Jr. and 9 other Co-PIs; begin 01/09/03 – 31/08/05).
- Fall 2002 - \$2,500,000 – **NSF: Biological Databases & Informatics**: “The HerpNet Community Informatics Project: Development of a Distributed Information Network of North American Herpetological Databases (HerpNet)”; DBI 01-32303; Univ. of Kansas and UC-Berkeley, lead institutions, BYU, Co-PI with 43 other institutions; 01/09/02 – 31/08/07 (BYU share \$8,140; to begin in 01/09/06 – 31/08/08).
- Spring 2003 – \$17,000 from BYU ORCA (mentoring undergraduate students) “Evolutionary genetics of reptiles - mentoring BYU undergraduate students (renewal)”, J.W. Sites, Jr., PI (01/05/03 – 30/04/04).
- Spring 2003 - \$11,953 – **NSF DDIG**: “Species Boundaries and Phylogenetic Relationships in Chromosome Races of the *Sceloporus grammicus* Complex (Squamata: Phrynosomatidae)”; (DEB 03-09103; J.W. Sites, Jr. & J.C. Marshall; 01/05/03 – 30/04/05).
- Spring 2003 - \$11,970 – **NSF DDIG**: “Phylogeny of the Genus *Microlophus* (Squamata: Tropiduridae): a History of Colonization and Dispersal”; (DEB 03-09111; J.W. Sites, Jr., & E. Benavides; 01/05/03 – 30/04/05).
- Summer 2003 - \$2,426,391 – **NSF: Assembling the Tree of Life**: “The Deep Scaly Project: Resolving Higher Level Squamate Phylogeny Using Genomic and Morphological Approaches”; EF 0334966; San Diego St. Univ. (lead), with BYU, Field Museum of Natural History, Univ. South Australia, Univ. Texas – Austin, SUNY – Stony Brook, Yale Univ.; 01/01/04 – 12/31/09 (BYU share \$596,828; including four REUs [2004-05, 2005-06, 2008-09; 2009-10; \$24,000]).

Summer 2005 - \$2,119,591 – **NSF: Office of International Science & Engineering (OISE - PIRE)**: “Partnership for International Research and Education. Collaborative Research: Establishing Sustainable International Collaborations in Evolution, Ecology, and Conservation Biology”; (award OISE 0530267; J. Johnson, PI; Co-PIs: K.A. Crandall, L.A. Johnson, J.W. Sites, Jr., & G. Orti (Univ. NE); 10/01/06 – 09/30/11). **PIRE Supplement** (OISE 0819898; J.W. Sites, Jr., PI, \$25,407; 04/2008 – 8/2008).

Fall 2007 (to 2010 – BYU Associate Academic Vice-President, College of Life Sciences, Department of Biology combined research award; “Patagonia Student Exchange Program”. \$41,000; PI: J. Johnson; Co-PIs: K. Crandall, L. Johnson, and J.W. Sites, Jr.

Spring 2008 – \$20,000 from BYU MEG (mentoring environment grant) “Amphibians & Reptiles as Model Systems: Phylogenetic Research for Undergraduates – a Renewal”, J.W. Sites, Jr., PI (02/2008 – 12/2008).

Spring/Summer 2008 - ~ \$28,165 – **NSF: National Evolutionary Synthesis Center (NESCent)**; “Perspectives on the Origin and Conservation of Biodiversity in Patagonia” – Catalysis Group meeting at Duke University (EF 0423641; J.W. Sites, Jr., PI; D.P. Faith, Co-PI).

Winter/spring 2009 – \$20,000 from BYU MEG “Amphibians & Reptiles as Model Systems: Phylogenetic Research for Undergraduates – a Renewal”, J.W. Sites, Jr., PI (02/2009 – 12/2009).

Winter/spring 2010 - \$20,000 from BYU MEG “Amphibians & Reptiles as Model Systems: Phylogenetic Research for Undergraduates – a Renewal”

Winter-spring 2011 - \$20,000 from BYU MEG “Amphibians & Reptiles as Model Systems: Phylogenetic Research for Undergraduates – a Renewal”

Winter 2011 - \$15,000 - **National Geographic – Waitt Grants Program**, for “Exploration, Discovery and Alpha Taxonomy: sampling poorly-known lizards of the genus *Liolaemus* (Squamata, Liolaemidae) in Peruvian Andes.” (#W195-11; to C. Aguilar and J.W. Sites, Jr.; 15/05/12 – 14/04/13).

Spring 2012 - \$14,940 – **NSF: DDIG**: “Diversification in the South American ‘dry diagonal’ biomes: Distribution modeling and multilocus comparative phylogeography in three co-distributed species of lizards.” (DEB 1210346; J.W. Sites, Jr., & F.P. Werneck; 01/03/12 – 28/02/13).

Spring 2013 - \$2,000,000; **NSF - Emerging Frontiers program: National Ecological Observatory Network (EF)**: “Collaborative Research: Quantifying Climate-forced Extinction Risks for Lizards, Amphibians, and Plants.”; (**EF – 1241885**; B. Sinervo PI, Co-PIs: D. Miles, J.W. Sites, Jr., and A. Bauer; \$2,000,000; BYU share = \$597,362; 01/03/13 – 28/02/17)

Winter 2014.: **REU Supplement to Award EF 1241885** (“Collaborative Research: Quantifying Climate-forced Extinction Risks for Lizards, Amphibians, and Plants.”); submitted 12/03/14, requesting spring/summer support for undergraduate student Randy Klabacka; funded at \$12,000.

Winter/Spring 2014 - \$20,000 support – BYU MEG “Herpetological Research for Undergraduate Students”.

NSF - Emerging Frontiers program: National Ecological Observatory Network (EF): “Collaborative Research: Quantifying Climate-forced Extinction Risks for Lizards, Amphibians, and Plants.”; (**EF – 1241885**; B. Sinervo PI, Co-PIs: D. Miles, J.W. Sites, Jr., and A. Bauer; \$2,000,000; BYU share

= \$597,362; 01/03/13 – 28/02/17).

- Sites, J.W., Jr., & C. Aguilar-Puntriano. 2015. **NSF-DDIG**: “Dissertation Research: Phylogeny of the *Liolaemus montanus* group and high-resolution species delimitation in the *L. robustus* clade (Squamata, Liolaemidae).” \$16,362, February 2015.
- Sites, J.W., Jr., & Perry Lee Wood, Jr. 2015. **NSF- DDIG**: “Dissertation Research: Phylogeography, convergent evolution, and substrate adaptation in an “adaptive” radiation of Southeast Asian Rock Geckos (*Cnemaspis* Strauch, 1887).” \$16,335, February 2015.
- Sites, J.W., Jr., & Derek Tucker. 2016. **NSF- DDIG**: “Dissertation Research: Lizards of the family Teiidae: phylogeny, historical biogeography, and continental phylogeography/species delimitation.” \$15,428.

INVITED RESEARCH SEMINARS:

- West Chester St. College, West Chester, PA (1979).
Texas A&M Univ., College Station, TX (1981).
Brigham Young Univ., Provo, UT (1982).
Univ. Utah, Salt Lake City, UT (1982).
Museum of Vertebrate Zoology, UC-Berkeley, CA (1983).
Utah State Univ., Logan, UT (1983).
Brigham Young Univ., Provo, UT (1985).
Univ. Illinois, Urbana, IL (1986).
Universidad Autonoma Metropolitana-Iztapalapa, D.F., MEXICO (1986).
Universidad Nacional Autonoma de Mexico, D.F., MEXICO (1986).
Australian Museum, Sydney, N.S.W., AUSTRALIA (1986).
Australian National University, Canberra, A.C.T., AUSTRALIA (1986).
Idaho State Univ., Pocatello, ID (1986).
Univ. of Michigan, Ann Arbor, MI (1987).
Texas A & M Univ., College Station, TX (1987).
Harvard Univ., Cambridge, MA (1987).
Smithsonian Tropical Research Institute, Panama City, PANAMA (1988).
UC-Santa Barbara, CA (1988).
Univ. Queensland, St. Lucia, QLD, AUSTRALIA (1988).
Univ. of Toronto/Royal Ontario Museum, Toronto, ONT, CANADA (1989).
Universidad Autonoma Nacional de México, and Instituto Politecnico Nacional, D.F., MEXICO (1989).
Brigham Young Univ., Provo, UT (1989).
Univ. of Arizona, Tucson, AZ (1990).
Univ. of New Mexico, Albuquerque, NM (1990).
Univ. of Georgia, Athens, GA (1990).
Arizona State Univ., Tempe, AZ (1990).
Univ. of São Paulo, São Paulo, BRAZIL (1991).
Univ. of Edinburgh, Edinburgh, SCOTLAND (1991).
Catholic University of Goiás, Goiania, BRAZIL (1992).
Plenary Lecture: Evolution Section - 11th International Chromosome Conference, Edinburgh, SCOTLAND (1992)
James Ford Bell Museum Nat. History/Univ. Minnesota, Minneapolis-St. Paul, MN (1992).

Plenary Lecture: International Workshop on Conservation of the Jamaican Iguana, Univ. of West Indies/Hope Zoo, Kingston, JAMAICA (1993).
 Univ. of Utah, Salt Lake City, UT (1993).
 Univ. of Georgia, Athens, GA (1993).
 Univ. of Nevada - Las Vegas, NV (1993).
 Southern Utah Univ. - Cedar City, UT (1994).
 Univ. of Nebraska - Lincoln, NE (1995).
 Brigham Young Univ. - Provo, UT (1995).
 Columbia Univ. - New York, NY (1995).
 Utah Assoc. of Herpetologists - Utah Mus. Nat. Hist., Salt Lake City, UT (1995).
 Plenary Lecture: VI Mexican Congress of Genetics - Xalapa, Veracruz, MEXICO (1995)
 Symposium Speaker, IV Congreso Latinoamericano de Herpetología, Santiago, CHILE (1996)
 Dept. of Zoology, Univ. of Queensland, Brisbane, AUSTRALIA (1997)
 Dept. Biological Sciences, Idaho St. Univ., Pocatello, ID (1998)
 Brigham Young Univ. - Provo, UT (Maeser lecture; Oct. 2002)
 Dept. of Biology, Univ. of Oregon – Ecology/Evolution group (April 2003)
 MVZ – Integrative Biol., UC – Berkeley (September 2003)
 Dept. Biological Sciences, Washington Univ. (October 2004)
 Dept. of Biology, Univ. of Nevada – Las Vegas (March 2005)
 Dept. of Biology, Univ. of Limpopo – Polokwane, SOUTH AFRICA (June 2005)
 Dept. of Biology, Univ. of Concepcion – Concepcion, CHILE (March 2007)
 CENPAT, Puerto Madryn, ARGENTINA (August 2007)
 Dept. of Zoology, Univ. of Western Australia, Perth WA (Sept. 2007)
 CENPAT, Puerto Madryn, ARGENTINA (August 2009)
 National Academy of Sciences, Cordoba, ARGENTINA (August 2009)
 Argentinian Congress of Herpetology, Jujuy, ARGENTINA (November 2009)
 Univ. of Brasilia, BRAZIL (June 2012)
 Dept. of Integrative Biology, Univ. Texas – Austin (October 2014)
 ASN/SSB/SSE Presidential address (Society of Systematic Biologists; Guarujá, Brazil, June 2015)
 7th Brazilian Congress of Herpetology, Gramada, BR (plenary lecture; Sept. 2015)

PEER-REVIEWED PUBLICATIONS:

- Halcomb, C.M., R.R. Boner, and J.W. SITES, JR. 1976. The Tennessee Heritage Program: an applied data management system for threatened and endangered species. **Association of Southeastern Biologists Bulletin** 23:155-158.
- SITES, J.W., JR. 1978. The foraging strategy of the dusky salamander, *Desmognathus fuscus* (Amphibia, Urodela, Plethodontidae): an empirical approach to predation theory. **Journal of Herpetology** 12:373-383.
- SITES, J.W., JR., and M.W. Haiduk. 1979. The karyotype of *Sceloporus exsul*. **Southwestern Naturalist** 24:393-395.
- SITES, J.W., JR., J.W. Bickham, M.W. Haiduk, and J.B. Iverson. 1979. Banded karyotypes of six taxa of kinosternid turtles. **Copeia** 1979:692-698.
- SITES, J.W., JR., J.W. Bickham, and M.W. Haiduk. 1979. A derived X chromosome in the turtle genus *Staurotypus*. **Science** 206:1410-1412.

- McCoid, M.J., J.W. SITES, JR., and J.R. Dixon. 1980. A third record for the Mexican snake *Chersodromus rubriventris*. **Southwestern Naturalist** 25:429.
- SITES, J.W., JR., and J.R. Dixon. 1981. A new subspecies of the iguanid lizard, *Sceloporus grammicus*, from north-central Mexico, with comments on its evolutionary implications and the status of *S. g. disparilis*. **Journal of Herpetology** 15:59-69.
- SITES, J.W., JR., J.W. Bickham, and M.W. Haiduk. 1981. Conservative chromosomal change in the bat family Mormoopidae. **Canadian Journal of Genetics and Cytology** 23:459-467.
- SITES, J.W., JR., I.F. Greenbaum, and J.W. Bickham. 1981. Biochemical systematics of Neotropical turtles of the genus *Rhinoclemys*. **Herpetologica** 37:256-264.
- SITES, J.W., JR., and J.R. Dixon. 1982. Geographic variation in *Sceloporus variabilis*, and its relationship to *S. teapensis* (Sauria: Iguanidae). **Copeia** 1982:14-27.
- SITES, J.W., JR. 1982. Morphological variation within and among three chromosome races of *Sceloporus grammicus* (Sauria, Iguanidae) in the north-central part of its range. **Copeia** 1982:920-941.
- SITES, J.W., JR. 1983. Chromosome evolution in the iguanid lizard *Sceloporus grammicus*. I. Chromosome polymorphisms. **Evolution** 37:38-53.
- SITES, J.W., JR., and I.F. Greenbaum. 1983. Chromosome evolution in the iguanid lizard *Sceloporus grammicus*. II. Allozyme variation. **Evolution** 37:54-65.
- McBee, K., J.W. SITES, JR., M.D. Engstrom, C. Rivero, and J.W. Bickham. 1984. Karyotypes of four species of neotropical geckos. **Journal of Herpetology** 18:83-84.
- SITES, J.W., JR., J.W. Bickham, B.A. Pytel, I.F. Greenbaum, and B.A. Bates. 1984. Biochemical characters and the reconstruction of turtle phylogenies: relationships among batagurine genera. **Systematic Zoology** 33:137-158.
- SITES, J.W., JR., and D.A. Boyce, Jr. 1985. A test for allozyme selection in *Sceloporus grammicus* (Sauria, Iguanidae). **Southwestern Naturalist** 30:41-51.
- Mather, C.M., and J.W. SITES, JR. 1985. *Sceloporus variabilis*. Account in **Catalogue of American Amphibians and Reptiles**. 373.1-373.4.
- Porter, C.A., and J.W. SITES, JR. 1985. Normal disjunction in Robertsonian heterozygotes from a highly polymorphic lizard population. **Cytogenetics and Cell Genetics** 39:250-257.
- SITES, J.W., JR. 1985. Chromosomal variation in selected populations of the lizard *Sceloporus grammicus*. **American Philosophical Society Research Report** 1984:11-12.
- Thompson, P., and J.W. SITES, JR. 1986. Population structure in chromosomally polytypic versus monotypic lizards of the genus *Sceloporus* (Sauria, Iguanidae) in relation to chromosomally mediated speciation. **Evolution** 40:303-314.
- SITES, J.W., JR., and P. Thompson. 1986. Allozyme variation in an anomalous individual of the iguanid lizard *Sceloporus graciosus*. **Journal of Herpetology** 20:428-432.
- Porter, C.A., and J.W. SITES, JR. 1986. Evolution of the *Sceloporus grammicus* complex (Sauria, Iguanidae) in central Mexico: population cytogenetics. **Systematic Zoology** 35:334-358.

- Thompson, P., and J.W. SITES, JR. 1986. Two aberrant karyotypes in the sagebrush lizard (*Sceloporus graciosus*): triploidy and a "supernumerary" oddity. **Great Basin Naturalist** 46:224-227.
- SITES, J.W., JR., R.L. Bezy, and P. Thompson. 1986. Non-random heteropolymer expression of lactate dehydrogenase isozymes in the lizard family Xantusiidae. **Biochemical Systematics and Ecology** 14:539-545.
- Bezy, R.L., and J.W. SITES, JR. 1987. A preliminary study of allozyme evolution in the lizard family Xantusiidae (Reptilia, Sauria). **Herpetologica** 43:280-292.
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CURRICULUM VITAE

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BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Education:

BS, Zoology, Brigham Young University, 1963

MS, Zoology, Brigham Young University, 1965

PhD, Vertebrate Ecology, University of Illinois, Urbana, 1969

Employment:

Instructor, University of Illinois, 1968-1969

Assistant Professor of Zoology, Brigham Young University, 1969-1972

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Teaching:

Vertebrate Zoology

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Community Ecology I, II

Animal Biology

Wildlife and Fish Management

General Ecology

Terrestrial and Rangeland Ecosystems

Limnology

Natural History of the Vertebrates

Administration and Committee Service:

Chair, Interdepartmental Committee on Evolution Course, 1971
Chair, College Committee for Development of College Integrated Ecology Curriculum for undergraduate and graduate students, 1974
Department of Zoology Graduate Committee, 1969-1976
Department Graduate Coordinator, 1974-1976
Department Coordinator, Division Wildlife and Range Resources, 1977-1987
Chair, Department of Zoology, 1988-1995
College Curriculum Committee, 1979-1979
College Research Committee, 1972-1975
College Executive Committee, 1989-1994
Advisor, Wildlife Society, 1977
University Graduate Council, 1972-1975
University Departmental Review Committee, 1973-1974
University Collecting Permit Review Committee (Chair), 1974-1979
University Faculty Awards Committee (Chair), 1994-1999
University Committee on Intellectual Property, 1992-1999
University Committee on Faculty Relations, Self Study
University Admissions Committee, 1994
University Collections Committee, 1994
Director, Monte L. Bean Museum, 1994-2006

Memberships in Professional Societies:

American Association for Advancement of Science
American Institute of Biological Science
American Museum of Natural History
American Paint Horse Association
American Society of Mammalogists (Secretary/Treasurer, Trustee)
Ecological Society of America
National Museum of Natural History
Rocky Mountain Elk Foundation
Safari Club International
Sigma Xi (President, 1998)
Utah Chapter Safari Club International
Utah Wildlife Society
Wildlife Society

Honors and Awards:

Tuition and Fee Award, Brigham Young University, 1959-1965
Graduated with Honors, BS, Brigham Young University, 1963
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Elected Sigma XI, Brigham Young University, 1966
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University Fellowship, University of Illinois, 1965-1969
Tuition and Fee Awards, University of Illinois, 1965-1969
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College Outstanding Citizenship Award, Brigham Young University, 1999
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Research Support:

NSF Grant (with Clive Jorgensen), Demography of *Dipodomys* and *Peromyscus*
NSF Grant (with Clive Jorgensen), Methods of Estimating Vertebrate Populations
Intermountain Forest and Range Experiment Station (with Clive Jorgensen), Small Mammal Distribution at the Desert Experiment Range
Bureau of Reclamation, Biotic Assessment of Crystal Geyser
U.S. Forest Service, Effect of Fire on Small Animal Populations
Division of Wildlife Resources, Big Game Studies
Utah Division of Wildlife Resources (with J. Flinders), Population Indices for Kit and Gray Fox
Uintah National Forest (with J. Flinders), Ecosystem Management in Relationship to Elk and Domestic Sheep Interaction
Ute Indian Tribe (with Hal Black), Population Biology of an Unhunted Black Bear Population
Utah Division of Wildlife Resources and US BLM (with Hal Black), Black Bear Population Biology

Publications:

Smith HD, Jorgensen CD, Tolley HD. Estimation of small mammal using recapture methods: partitioning of estimator variables. *Acta Theriologica* 17:57-66, 1972.

Smith HD, White CM. A Laboratory Study of Vertebrate Zoology, Burgess Pub Co, Minneapolis, Mn, 1972.

Smith HD. Small animal populations in Strawberry Valley, Utah. *Proc Utah Acad Sci Arts Letters* 51:19-44, 1974.

Jorgensen CD, Smith HD. Mini-grids and small mammal estimates. *Proc Utah Acad Sci Arts Letters* 51:12-18, 1974.

Garcia JR, Smith HD, Jorgensen CD. A capture-release method for determining small mammal activity. *Proc Utah Acad Sci Arts Letters* 51:1-11, 1974.

Richens GH, Smith HD, Jorgensen CD. Growth and development of the western harvest mouse, *Reithrodontomys megalotis megalotis*. *Great Basin Nat* 34:105-120, 1974.

- Nichols DW, Smith HD, Baker MF. Rodent populations, biomass and community relationships in *Artemisia tridentata*, Rush Valley Utah. *Great Basin Nat* 35:191-201, 1975.
- Jorgensen CD, Smith HD, Scott DT. Small mammal estimates using recapture methods with variables partitioned. *Acta Theriologica* 20:303-318, 1975.
- Smith HD, Jorgensen CD. Reproductive biology of North American desert rodent. In Prakash I, Ghosh PK (eds). *Rodents in Desert Environments*. W. Junk b.v. Publishers, The Hague, The Netherlands, 1975.
- Smith HD, Richins GH, Jorgensen CD. Growth of *Dipodomys ordii* (Rodentia:Heteromyidae). *Great Basin Nat* 38:215-221, 1978.
- Smith HD, Morse EL, Jorgensen CD. Laboratory breeding of *Dipodomys ordii*. *Encyclia* 55:109-112, 1978.
- Scott DT, Jorgensen CD, Smith HD. Comparison of live and removal methods to estimate small mammal densities. *Acta Theriologica* 23:173-193, 1978.
- Lande DS, Jorgensen CD, Smith HD. Competition between harvester ants and rodents in the cold desert. *Great Basin Nat* 39:267-273, 1979.
- Bowers MA, Smith HD. Differential habitat utilization by sexes of the deer mouse, *Peromyscus maniculatus*. *Ecology* 60:869-875, 1979.
- Jorgensen CD, Smith HD, Garcia JR. Temporal activity patterns of *Dipodomys ordii* population. *Great Basin Nat* 40:282-286, 1980.
- King MM, Smith HD. Differential habitat utilization by the sexes of mule deer. *Great Basin Nat* 40:273-281, 1980.
- Smith HD, Stormer FA, Godfrey RD. A collapsible quail trap. *US Forest Service Research Note RM Suppl* 400:1-3, 1981.
- Scrivner JH, Smith HD. Pocket gophers (*Thomomys talpoides*) in successional stages of spruce-fir forest in Idaho. *Great Basin Nat* 41:362-367, 1981.
- Scrivner JH, Smith HD. Relative abundance of small mammals in four successional stages of spruce-fir forest in Idaho. *Northwest Sci* 58:171-176, 1984.
- Smith HD, Oveson MC, Pritchett CL. Characteristics of mule deer beds. *Great Basin Nat* 46:542-546, 1986.
- Robey EH, Smith HD, Belk MC. Niche pattern in a Great Basin rodent fauna. *Great Basin Nat* 47:488-496, 1987.
- Pritchett CL, Nilsen JA, Coffeen MP, Smith HD. Pygmy rabbits in the Colorado River drainage. *Great Basin Nat* 47:231-233, 1987.

Belk MC, Smith HD, Lawson J. Use and partitioning of montane habitat by small mammals. *J Mammal* 69:688-695, 1988.

Mower KJ, Smith HD. Diet similarity between elk and deer in Utah. *Great Basin Nat* 49:552-555, 1989.

Belk MC, Pritchett CL, Smith HD. Patterns of microhabitat use by *Sorex monticolus* in summer. *Great Basin Nat* 50:387-389, 1990.

Smith HD, Frost HH. Tanner, Vasco Myron 1892-1989 – Obituary. *J Mammal* 72:430-432, 1991.

Belk MC, Smith HD. *Ammospermophilus leucurus*. *Mammalian Species Suppl* 368:1-8, 1991.

Madrigal JL, Pixton GC, Collings BJ, Booth GM, Smith HD. A comparison of two methods of estimating bird mortalities from field-applied pesticides. *Environ Toxicol Chem* 15:878-885, 1996.

Smith HD. Wyoming ground squirrel/*Spermophilus elegans*. In: *The Smithsonian Book of North American Mammals* (Wilson DE and Ruff S, eds). Smithsonian Institution Press, Washington DC, p 417-419, 1999.

Smith HD. Sagebrush vole/*Lemmyscus curtatus*. In: *The Smithsonian Book of North American Mammals* (Wilson DE and Ruff S, eds). Smithsonian Institution Press, Washington DC, p 649-650, 1999.

Cox DC and Smith HD. The Monte L. Bean Life Science Museum – Brigham Young University. *ASC Newsletter* (27)2:5-8, 1999.

Smith HD, Skidmore WR, Philbrick M. In: Cox DG. Great Hunters – Their Trophy Rooms and Collections, Vol 3. Safari Press, Inc, Long Beach, California, 142-148, 2000.

CURRICULUM VITAE

Lamont W. Smith

Sources:

<http://www.ncbi.nlm.nih.gov/pubmed/?term=Smith+LW+and+dairy+cattle>

http://www.heraldextra.com/lifestyles/announcements/obituaries/lamont-wood-smith/article_fe8612c2-4145-5071-b402-6789c8bd16cc.html

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: 18 September 1928, Hill Spring, Alberta, Canada

Death: 18 August 2010, Cedar Hills, Utah

Education:

BS, Brigham Young University, 1960

MS, University of Wisconsin at Madison, 1962

PhD, West Virginia University, 1970.

Employment:

Faculty Member, Department of Animal Science, Brigham Young University, 1970-1986

Faculty Member, Department of Zoology, Brigham Young University, 1986-1994.

Teaching:

Elementary Human Anatomy

Publications:

Smith LW, Inskeep EK. Effect of progestins on lactation in the ewe. *J Anim Sci* 30:957-959, 1970.

Calvert CC, Smith LW. Recycling and degradation of anabolic agents in animal excreta. *Environ Qual Saf Suppl* (5): 203-211, 1976.

Calvert CC, Smith LW. Arsenic in tissues of sheep and milk of dairy cows fed arsanilic acid and 3-nitro-4-hydroxyphenylarsonic acid. *J Anim Sci* 51:414-421, 1980.

Gardner RW, Smith LW, Park RL. Feeding and management of dairy heifers for optimal lifetime productivity. *J Dairy Sci* 71:996-999, 1988.

Bailey AT, Erdman RA, Smith LW, Sharma BK. Particle size reduction during initial mastication of forages by dairy cattle. *J Anim Sci* 68:2084-2094, 1990.

CURRICULUM VITAE

Michael R. Stark

Sources:

Biographical Sketch provided by Michael R. Stark

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Pub Med Search: <http://www.ncbi.nlm.nih.gov/pubmed>

Education:

BS, Zoology, Brigham Young University, 1992

MS, Developmental Biology, Idaho State University, 1994

PhD, Developmental/Cell Biology, University of California, Irvine, 1998

Post-doctoral work, Developmental Neurobiology, University of Utah, 1998-2001

Positions and Employment:

Graduate research with Dr. Trent Stephens, Idaho State University, Pocatello, ID, 1992-1994

Graduate research with Dr. Marianne Bronner-Fraser, Department of Developmental and Cell Biology, University of California, Irvine (94-96) and Caltech (96-98), 1994-1998

Postdoctoral Fellow with Gary C. Schoenwolf and Mahendra Rao, Department of Neurobiology and Anatomy, University of Utah School of Medicine, 1998-2001

Adjunct Faculty Appointment, Dept. of Neurobiology and Anatomy, University of Utah, 2001-2008

Assistant Professor, Physiology & Developmental Biology, Brigham Young University, 2001-2008

Associate Professor, Physiology & Developmental Biology, Brigham Young University, 2009

Teaching:

Human Anatomy

Developmental Biology

Professional Memberships:

Member, Society for Developmental Biology, 2000-

Member, The Brain Institute, University of Utah, 2005-

Member, Society for Neuroscience, 2009

Honors, Awards, and Other Experience:

Fellow, NIH Developmental Biology Training Grant, University of Utah, 1999-2001
Invited reviewer: Developmental Biology, Development, Journal of Cell Biology, Developmental Dynamics, Molecular & Cellular Neuroscience, J. Neurochemistry 1998-
Recipient of Teacher of Honor Award from the BYU Student Honor Association, 2002
Ad-hoc reviewer, Developmental Systems Cluster, NSF, 2004-2007
Brigham Young University Young Scholar Award, 2006
College of Biology and Agriculture Outstanding Mentor Award (BYU), 2006
Ad-hoc reviewer, Neural Cell Fate study section, NIH, 2007-2009
Consulting Editor, McGraw-Hill Yearbook in Science (Developmental Biology), 2007-
Editorial Board, Developmental Dynamics 2009-
Consulting Editor, McGraw-Hill Encyclopedia of Science (Developmental Biology), 2010-
College of Life Sciences Outstanding Research Award (BYU), 2010
Department of Physiology & Developmental Biology Faculty Achievement Award, 2011
2014 Ad-hoc reviewer, BBSRC funding agency, 2011, 2014
Organizer, LDS Life Science Research Symposium, 2013
Keynote address (sensory neurogenesis), Colorado Alpha herpesvirus Latency Symposium, 2013
External Program Reviewer, Department of Biology, University of Arkansas, Fort Smith, 2014
Parke-Davis Visiting Fellow (6 months), University of Cambridge, ENGLAND, 2014
Co-Organizer, SW Regional Society for Developmental Biology meeting, Dallas, TX, 2015

Research Support:

Parke-Davis fellowship award, University of Cambridge (award period 6/2015-12/2015)
Competitive fellowship award to support visiting scholars from the US for study at the University of Cambridge (Role: Recipient and Cambridge Fellow; £32,300 ≈ \$52,000)

NIH/NICHD -- R01 HD046475 (award period: 8/01/05-4/30/12)
Genes regulating neurogenesis in the trigeminal placode (Role: PI; \$1,097,729)
This project aims to characterize the function of key gene products expressed during early trigeminal sensory neuron development so as to better understand critical steps in cell fate determination.

NIH/NICHD -- R01 HD046475 - ARRA Supplemental (award period: 5/01/09-9/30/10)
Genes regulating neurogenesis in the trigeminal placode (Role: PI; \$24,970)
This project aims to characterize the function of key gene products expressed during early trigeminal sensory neuron development so as to better understand critical steps in cell fate determination.

The BYU Marcus M. Jensen Poultry Research Grant (award period: 7/2008-7/2010; 7/2012-7/2014)
The establishment of transgenic chicken lines for the purpose of carrying out a large scale insertional mutagenesis/gene trap study (Role: PI; \$21,000 total award)

This project aims to characterize transposon-based gene insertion efficiency in chicken cells, and to establish founder chicken lines for the purpose of carrying out a large-scale gene insertion screen.

NIH/NICHD -- R03 HD41470 (award period: 2/01/02-1/31/05)

Fz-7 and FREK in early trigeminal placode development (Role: PI; \$150,000 total award)

This project aimed to define the expression and function of frizzled-7 and FREK in cranial placode development, particularly focusing on preliminary studies in placode development.

Primary Children's Medical Center Foundation (award period: 7/15/00-12/31/01)

Frizzled gene function in the developing neurogenic placodes (Role: PI)

Publications:

1. Smith, D.M., **Stark, M.R.** and Stephens, T.D. (1996). Lability of the presumptive pectoral and pelvic girdle territories compared using celomic grafts. *Teratology*, **54**, 1-11.
2. Marcelle, C., **Stark, M.R.**, and Bronner-Fraser, M. (1997). Coordinate actions of BMPs, Wnts, Shh and Noggin mediate patterning of the dorsal somite. *Development*, **124**, 3955-3963.
3. **Stark, M.R.**, Sechrist, J., Bronner-Fraser, M. and Marcelle, C. (1997). Neural tube-ectoderm interactions are required for trigeminal placode formation. *Development*, **124**, 4287-4295.
4. Baker, C.V.H.*, **Stark, M.R.***, Marcelle, C., and Bronner-Fraser, M. (1999). Competence, specification and induction of Pax-3 in the trigeminal placode. *Development* **126**, 147-156. (*equal contribution, listed alphabetically)
5. Darnell, D.K., **Stark, M.R.** and Schoenwolf, G.C. (1999). Timing and cell interactions underlying neural induction in the chick embryo. *Development* **126**, 2505-2514.
6. **Stark, M.R.**, Biggs, J.J., Schoenwolf, G.C., and Rao, M.S. (2000). Characterization of Avian Frizzled Genes in Cranial Placode Development. *Mech. Dev.* **93**, 195-200.
7. **Stark, M.R.**, Rao, M.S., Schoenwolf, G.C., Yang, G., Smith, D., Mauch, T.J. (2000). Frizzled-4 expression during chick kidney development. *Mech Dev.* **98**, 121-125.
8. Baker, C.V.H., Groves, A.K., **Stark, M.R.**, and Bronner-Fraser, M. (2000). Induction of ectodermal placodes. Pages 87-97 in *Cell and Molecular Biology of the Ear*. Edited by Lim and Stoeckert. Kluwer Academic/Plenum Publishers, New York, 2000.
9. Van Raay, T.J., Wang, Y.K., **Stark, M.R.**, Rasmussen, J.T., Francke, U., Vetter, M.L., and Rao, M.S. (2001). frizzled 9 is expressed in neural precursor cells in the developing neural tube. *Dev Genes Evol* **211**, 453-7.
10. Van Raay, T. and **Stark, M.R.** (2002). Cell Labeling and Gene Misexpression by Electroporation. In *Methods in Molecular Biology*, vol. 198: Neural Stem Cells: Methods and Protocols. Edited by: T.Zigova, P.R. Sandberg, and J.R. Sanchez-Ramos. Humana Press. 223-232.
11. Baker, C., **Stark, M.R.**, and Bronner-Fraser, M. (2002). Pax3-expressing trigeminal placode cells can localize to trunk neural crest sites but are committed to a cutaneous sensory neuron fate. *Dev Biol* **249**, 219-236.
12. Fuhrmann, S., **Stark, M.R.**, and Heller, S. (2003). Expression of Frizzled genes in the developing chick eye. *Gene Expr Patterns* **3**, 659-62.

13. Linker, C., Lesbros, C., **Stark, M.R.**, and Marcelle, C. (2003). Intrinsic signals regulate the initial steps of myogenesis in vertebrates. *Development* **130**, 4797-807.
14. Rodriguez R.R., Seegmiller R.E., **Stark M.R.**, Bridgewater L.C. (2004). A type XI collagen mutation leads to increased degradation of type II collagen in articular cartilage. *Osteoarthritis Cartilage* **12(4)**, 314-20.
15. Lassiter, R. N., Dude, C. M., Reynolds, S. B., Winters, N. I., Baker, C. V. and **Stark, M.R.** (2007). Canonical Wnt signaling is required for ophthalmic trigeminal placode cell fate determination and maintenance. *Dev Biol* **308**, 392-406. **Recommended by Faculty of 1000** (NIHMS17604017)
16. Van Raay, T.J., Lassiter, R.T. and **Stark, M.R.** (2008). Electroporation Strategies for Genetic Manipulation and Cell Labeling. In *Methods in Molecular Biology*, vol. 438 Neural Stem Cells: Methods and Protocols.: Edited by: L. P. Weiner. Humana Press. 305-318.
17. **Stark, M.R.** and Barrow, J.R. (2008). Stem Cell Research: Science in the Fast Lane. *Journal of Collegium Aesculapium*, Summer 2008, 34-39.
18. Dude, C.M., Kuan, C.-Y.K., Bradshaw, J.R., Greene, N.D.E., Relaix, F., **Stark, M.R.*** and Baker, C.V.H.* (2009). Activation of Pax3 target genes is necessary but not sufficient for neurogenesis in the ophthalmic trigeminal placode. *Dev Biol* **326**, 314-26. (*corresponding authors)
19. Lassiter R.N., Reynolds S.B., Marin K.D., Mayo T.F., **Stark, M.R.** (2009). FGF signaling is essential for ophthalmic trigeminal placode cell delamination and differentiation. *Dev Dyn* **238**, 1073-1082.
20. Lassiter R.N., Ball M.K., Adams J.S., Wright B.T., **Stark M.R.** (2010). Sensory neuron differentiation is regulated by notch signaling in the trigeminal placode. *Dev Biol* **344**, 836-848.
21. **Stark, M.R.** (2012). Cell Fate Determination. Chapter in *McGraw-Hill's Encyclopedia of Science and Technology*. McGraw-Hill.
22. Hansen, M.D., **Stark, M.R.** (2012). Actin dynamics and cell-cell junction remodeling in epithelial morphogenesis. Chapter in *Actin: Structure, Function, and Disease*. Nova Science Publishers.
23. Liu, Q., Spusta, S.C., Mi, R., Lassiter, R.N.T., **Stark, M.R.**, Höke, A., Rao, M.S., and Zeng, X. (2012). Human neural crest stem cells derived from hESC and induced pluripotent stem cells: Induction, maintenance and differentiation into functional Schwann cells. *Stem Cells Transl Med* **1(4)**, 266-278.
24. Williams, B.L., **Stark, M.R.**, Caldwell, R.L. (2012). Microdistribution of tetrodotoxin in two species of blue-ringed octopuses (*Hapalochlaena lunulata* and *Hapalochlaena fasciata*) detected by fluorescent immunolabeling. *Toxicon* **60**, 1307-1313. (<http://dx.doi.org/10.1016/j.toxicon.2012.08.015>)
25. Adams, J. S., Sudweeks, S. N. and **Stark, M. R.** (2014). Pax3 isoforms in sensory neurogenesis: expression and function in the ophthalmic trigeminal placode. *Dev Dyn* **243**, 1249-61. (<http://dx.doi.org/10.1002/dvdy.24108>)
26. Lassiter, R. N., **Stark, M. R.**, Zhao, T. and Zhou, C. J. (2014). Signaling mechanisms controlling cranial placode neurogenesis and delamination. *Dev Biol* **389**, 39-49. (<http://dx.doi.org/10.1016/j.ydbio.2013.11.025>; Review – peer reviewed)
27. Jordan, B. J., Vogel, S., **Stark, M. R.** and Beckstead, R. B. (2014). Expression of green fluorescent protein in the chicken using in vivo transfection of the piggyBac transposon. *Journal of Biotechnology* **173**, 86-9. (<http://dx.doi.org/10.1016/j.jbiotec.2014.01.016>)
28. **Stark, M. R.** (2014). Vertebrate neurogenic placode development: historical highlights that have shaped our current understanding. *Dev Dyn* **243**, 1167-75. (<http://dx.doi.org/10.1016/j.mod.2014.09.003>)

29. Voelkel, J. E., Harvey, J. A., Adams, J. S., Lassiter, R. N. and **Stark, M. R.** (2014). FGF and Notch signaling in sensory neuron formation: A multifactorial approach to understanding signaling pathway hierarchy. *Mech Dev* **134**, 55-66. (<http://dx.doi.org/10.1002/dvdy.24152>)
30. Aguilar, C., **Stark, M. R.**, Arroyo, J. A., Standing, M. D., Rios, S., Washburn, T. and Sites, J. W. (2015), Placental morphology in two sympatric Andean lizards of the genus *Liolaemus* (Reptilia: Liolaemidae). *J. Morphol.*, **276**, 1205–1217. (doi: 10.1002/jmor.20412)

CURRICULUM VITAE

PERSONAL DATA

Name: Sterling N. Sudweeks, Ph.D.
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EMPLOYMENT

2001 - 2007, Assistant Professor, Brigham Young University
2007 – present, Associate Professor, Brigham Young University

EDUCATION AND EXPERIENCE

1991 Microbiology lab aid for U.S. Bureau of Mines Salt Lake City
Research Center
1992 B.S. in Molecular Biology from Brigham Young University
1997 Ph.D. in Pharmacology from the University of Utah
1997-2001 Postdoctoral fellow, National Institute of Environmental Health
Science/NIH, Research Triangle Park, North Carolina
2014 Visiting Professor – sabbatical, Laboratory of Dr. Jie Wu, Barrow
Neurological Institute, Phoenix, Arizona

GRANTS/FUNDING

Co-PI on NIH grant R0102066 - Nicotine and alcohol co-dependence, PI is Dr. Scott Steffensen, BYU Psychology, NIDA/NIH, \$2,008,651.00, 2014-2019
Co-PI on NIH grant R0102059 - Neuropharmacological substrates of alcohol addiction, PI is Dr. Scott Steffensen, BYU Psychology, NIAAA/NIH, \$1,468,985.00, 2012-2017
Co-PI on NIH grant R01AA013666 (Neuropharmacological substrates of alcohol addiction, PI is Dr. Scott Steffensen, BYU Psychology) NIAAA/NIH, \$1,605,000.00, 2006-2011
BYU ORCA Mentoring Environment Grant, 2008
PI on NIH grant 5K22ES011639 - Transition to Independent Position Award (Neuronal Nicotinic ACh Receptors and Alzheimer's Disease) NIEHS/NIH, \$324,000.00, 2002-2006
BYU College of Biology and Agriculture, Undergraduate Education Fund Grant, \$22,500, 2006
BYU ORCA Mentoring Environment Grant, 2006
BYU ORCA Mentoring Environment Grant, 2005
BYU ORCA Mentoring Environment Grant, 2003

OTHER HONORS AND AWARDS

Martin Rodbell Memorial Award for best Postdoctoral Research Seminar in the Laboratory of Signal Transduction NIEHS/NIH, 2000

The Fellows Award for Research Excellence (FARE) for NIH intramural fellows, 2000

Martin Rodbell Memorial Award for best Postdoctoral Research Seminar in the Laboratory of Signal Transduction NIEHS/NIH, 1999

University of Utah Research Committee Graduate Research Award, 1995-96

Sigma Xi Grant in Aid of Research, 1995

Trustees Scholarship at Brigham Young University, 1986-87

KSL-TV and Deseret News Science Sterling Scholar, Utah State Finalist, 1986

Bausch & Lomb Student Science Achievement Award, 1986

Eagle Scout, 1982

BIBLIOGRAPHY

PUBLICATIONS:

Sudweeks, S.N., and Twyman, R.E. Single Cell Reverse-Transcription Polymerase Chain Reaction (RT-PCR) and the GABA-A Receptor. *Neurochemistry International*, **28**(2):137-139 (1996)

Kriegler, S., Sudweeks, S., and Yakel J.L. The nicotinic alpha4 receptor subunit contributes to the lining of the ion channel pore when expressed with the 5-HT3 receptor subunit. *Journal of Biological Chemistry* **274**(7):3934-6 (1999).

Jones, S., Sudweeks, S., and Yakel, J.L. Nicotinic receptors in the brain: correlating physiology with function. *Trends in Neurosciences* **22**(12):555-61 (1999).

Kriegler, S., Sudweeks, S., and Yakel, J.L. MTSEA potentiates 5-HT3 receptors containing the nicotinic alpha4 subunit. *Neuropharmacology* **38**(12):1913-5 (1999).

Sudweeks, S., and Yakel, J.L. Functional and Molecular Characterization of Neuronal Nicotinic ACh Receptors in Rat CA1 Hippocampal Neurones. *Journal of Physiology* **527**(3): 515-528 (2000).

Khiroug, S.S., Harkness, P.C., Lamb, P.W., Sudweeks, S., Khiroug, L., Millar, N.S., and Yakel, J.L. Rat nicotinic ACh receptor $\alpha 7$ and $\beta 2$ subunits co-assemble to form functional heteromeric nicotinic receptor channels. *Journal of Physiology* **540**(3): 425-434 (2002).

Sudweeks S.N., Hooft J.A., Yakel J.L. 2002. Serotonin 5-HT(3) receptors in rat CA1 hippocampal interneurons: functional and molecular characterization. *Journal of Physiology* **544(3)**: 715-26 (2002).

Heather A. Wilson-Ashworth, Allan M. Judd, Richard M. Law, Brad D. Freestone, Shannon Taylor, Matthew K. Mizukawa, Kevin R. Cromar, Sterling Sudweeks, John D. Bell. Formation of transient non-protein calcium pores by lysophospholipids in S49 lymphoma cells. *The Journal of Membrane Biology*. **200(1)**:25-33 (2004).

Taylor, E.B., Hurst, D., Greenwood, L.J., Lamb J.D., Cline, T.D., Sudweeks, S.N., Winder, W.W. Endurance Training Increases LKB1 Protein but not AMPKK Activity in Skeletal Muscle. *Am J Physiol Endocrinol Metab*. **287(6)**:E1082-9 (2004).

David W. Allison, Allison J. Ohan, Sarah H. Stobbs, Manuel Mameli, C. Fernando Valenzuela, Sterling N. Sudweeks, Andrew P. Ray, Steven J. Henriksen, and Scott C. Steffensen. Connexin-36 Gap Junctions Mediate Electrical Coupling Between Ventral Tegmental Area GABA Neurons. *Synapse*. **60(1)**:20-31 (2006).

Branvold D.J., Allred D.R., Beckstead D.J., Kim H.J., Fillmore N., Condon B.M., Brown J.D., Sudweeks S.N., Thomson D.M., and Winder W.W. Thyroid Hormone effects on LKB1, MO25, phospho-AMPK, phospho-CREB, and PGC-1{alpha} in Rat Muscle. *J Appl Physiol*. Oct;**105(4)**:1218-27. Epub 2008 Jul 31. (2008).

Seegmiller R.E., Bomsta B.D., Bridgewater L.C., Niederhauser C.M., Montañó C., Sudweeks S., Eyre D.R., and Fernandes R.J. The Heterozygous Disproportionate micromelia (*Dmm*) Mouse: Morphological Changes in Fetal Cartilage Precede Postnatal Dwarfism and Compared to Lethal Homozygotes Can Explain the Mild Phenotype. *J Histochem Cytochem*. Nov;**56(11)**:1003-11. Epub 2008 Aug 4. (2008).

Ludlow KH, Bradley KD, Allison DW, Taylor SR, Yorgason JT, Hansen DM, Walton CH, Sudweeks SN, Steffensen SC. Acute and chronic ethanol modulate dopamine D2-subtype receptor responses in ventral tegmental area GABA neurons. *Alcoholism: Clinical and Experimental Research*. **33(5)**: 804-811. Epub 2009 Mar 6 (2009).

Drummond M., Conlee, R., Mack G., Sudweeks S., Schaalje G., Parcell A. *Myogenic regulatory factor mRNA, protein expression and resistance exercise volume*. European Journal of Applied Physiology. **108(4)**:771-778 Mar. (2010).

Smith CD, Compton RA, Bowler JS, Kemp JT, Sudweeks SN, Thomson DM, Winder WW. *Characterization of the liver kinase B1-mouse protein-25 -Ste-20-related adaptor protein complex in adult mouse skeletal muscle*. J Appl Physiol. **111(6)**:1622-8. Dec. (2011).

Merrill CB, McNeil M, Williamson RC, Poole BR, Nelson B, Sudweeks S, Edwards JG. *Identification of mRNA for endocannabinoid biosynthetic enzymes within hippocampal pyramidal cells and CA1 stratum radiatum interneuron subtypes using quantitative real-time polymerase chain reaction*. Neuroscience. Vol. **218**: 88-99, Aug. (2012).

Taylor DH, Burman PN, Hansen MD, Wilcox RS, Larsen BR, Blanchard JK, Merrill CB, Edwards JG, Sudweeks SN, Wu J, Arias HR, Steffensen SC. *Nicotine Enhances the Excitability of Gaba Neurons in the Ventral Tegmental Area via Activation of Alpha 7 Nicotinic Receptors on Glutamate Terminals*. Biochem & Pharmacol S1:007. doi: 10.4172/2167-0501.S1-007. Apr. (2013).

Adams JS, Sudweeks SN, Stark MR. *Pax3 isoforms in sensory neurogenesis: Expression and function in the ophthalmic trigeminal placode*. Developmental Dynamics **243**:1249–1261, DOI: 10.1002/DVDY.24108, Jan. (2014).

POSTERS AND PRESENTATIONS:

Sudweeks, S.N., and Twyman, R.E. Single Neuron PCR Analysis for GABA-A Receptor Subunits. Poster for Intermountain Neuroscience Chapter Meeting. October 25, 1993.

Sudweeks, S.N., and Twyman, R.E. Analysis of GABA-A Receptors in Cultured Fetal Mouse Cortical Neurons. Talk given at Intermountain Neuroscience Snowbird Symposium. Snowbird, Utah. May 19-20, 1994.

Sudweeks, S.N., and Twyman, R.E. RT-PCR Analysis of Single Cultured Mouse Cortical Neurons for GABA-A Receptor Subunits. Society for Neuroscience Abstracts, 1994.

Gahring, L.C., Twyman, R.E., Eichten, J.M., Sudweeks, S.N., Jackson, L., Baringer, J.R., and Rogers, S.W. Neuronal Glutamate Receptor Antibodies - Potential Excitotoxins? Society for Neuroscience Abstracts, 1994.

Sudweeks, S.N., and Twyman, R.E. Identification of Putative GABA-A Receptor $\beta 2$ Splice Variant in Single Cultured Mouse Cerebellar Granule Cells. Society for Neuroscience Abstracts, 1995

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Curriculum Vitae

Vasco M. Tanner

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Birth: 29 October 1892, Payson, Utah

Death: 25 April 1989, Provo, Utah

Education:

BA, Brigham Young University, 1915

MA, University of Utah, 1920

PhD, Stanford, 1925

Service:

Chair, Department of Zoology and Entomology, 1925-1958

Curator of Entomology until 1981

Chairman, Forestry and Flood Control Committee, Provo Chamber of Commerce, 35 years

Chairman, Provo City Utilities Board, 20 years

Member, Utah State Parks and Recreation Commission, 4 years

President, Sons of the Utah Pioneers, 3 years

Secretary and editor, Utah Academy of Arts and Sciences, 12 years

Founder and Editor, *The Great Basin Naturalist*

Professional Societies:

Fellow, Royal Entomological Society

Fellow, Entomological Society of America

Employment:

Head, Department of Biology, Dixie College, St. George, UT 1916-1924

Head, Department of Zoology and Entomology, Brigham Young University, 1925-1957

Teaching:

General Zoology, Elementary Entomology, Heredity and Eugenics, Invertebrate Zoology, Vertebrate Zoology, Insect Morphology, Insect Classification, General Economic Entomology, History of Biology, Advanced Entomology, Comparative Anatomy of the Vertebrates, Animal Ecology, Field Zoology, Principles of Biological Nomenclature, Systematic and Economic Ornithology, Histology, General Embryology, Aquatic Zoology, Fresh Water Zoology Problems, Arthropods of the Intermountain States, Advanced Study of The Coleoptera, Nature Study for Teachers, Genetics and Racial Hygiene, History of

Entomology, Special Problems in Systematic Entomology, Research Work in Insect Morphology, Literature and Zoology of the Great Basin, Advanced Ichthyology, Insect literature and nomenclature, Study of Insect Genitalia, Insect Embryology

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CURRICULUM VITAE

Wilmer W. Tanner

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BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

https://en.wikipedia.org/wiki/Wilmer_W._Tanner

Birth: 17 December 2009, Fairview, Utah

Death: 28 October 2011, Provo, Utah

Education:

BS, Zoology and Entomology, Brigham Young University, 1937

MS, Zoology and Entomology, Brigham Young University, 1938

PhD, Herpetology, University of Kansas, 1949

Employment:

Provo High School Teacher, Geology and Biology, Provo School District, 1938-1947

Faculty Member, Department of Zoology and Entomology and Department of Zoology, 1949-1976

Teaching:

Survey Course in Heredity, Aquatic Zoology, Ichthyology, Herpetology, Parasitology, Insect Morphology, Medical Entomology, Research Work in Systematic Vertebrate Zoology, Studies in the Anatomy of the Amphibia, Geographical Distribution of the Cold-blooded Vertebrates, Natural History of the Amphibia and Reptiles, Advanced Herpetology, Vertebrate Embryology, Histological Technique, Zoogeography, Comparative Vertebrate Anatomy, Advanced Vertebrate Anatomy, Theoretical Zoology, Animal Biology, History of Biology, Parasitology

Administrative and Service Assignments:

Curator of the BYU Life Science Museum, 1972-1979

Worked with Monte L. and Birdie Bean in acquiring funding for building the Monte L. Bean Museum

Worked to help plan the building of the Bean Museum

Director of the Bean Museum, 1976-1979

Curator of the Herpetology Collection, BYU Life Science Museum and Monte L. Bean Museum

Research Support:

Ground Radiation Effects on Terrestrial Vertebrates in Southeastern Utah and Herpetology Studies of the Nevada Test Site, Grants from the Atomic Energy Commission, 1959-1970

Professional Societies and Service:

Member, American Society of Ichthyologists and Herpetologists

Member, American Association for the Advancement of Science

Member, Herpetologist's League

Editor, *Herpetologica*, 1960-1967

Secretary Treasurer, Herpetologist League, 1960

Vice President, Herpetologist League, 1968-1969

President, Herpetologist's League, 1970-1971

Member, Executive Council, , Herpetologist's League, 1972-1977

President, Utah Academy of Sciences, 1969-1971

Publications:

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Naturalist 59:295–296, 1999.

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CURRICULUM VITAE

Vernon J. Tipton

Sources:

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Web Search: Vernon J. Tipton publications

<https://www.google.com/search?q=Vernon+J.+Tipton+publications&oq=Vernon+J.+Tipton+publications&aqs=chrome..69i57.9137j0j4&sourceid=chrome&ie=UTF-8>

Search on BYU site for Vernon J. Tipton

<http://home.byu.edu/home/search?search=Vernon+J.+Tipton>

<https://archive.org/stream/commencementexer1997brig#page/10/mode/2up>

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: 12 July 1920, Springville, Utah

Death: 6 November 2001, Payson, Utah

Education:

BS, Brigham Young University, 1948

MS, Brigham Young University, 1949

PhD, University of California at Berkeley, 1959

Employment:

US Army, 1942-1945

US Army, 1949-1968, Medical Entomologist, Army Medical Research Teams and Teaching

Member of the Faculty, Brigham Young University, 1968-1983.

Teaching:

Introductory Entomology

Medical Entomology

Animal Biology

Service:

Director, Center for Health and Environmental Studies, Brigham Young University

Member, Neal A. Maxwell Select Committee on Education
Member and President, Utah Valley Hospital Board, 1979-1982
Member Nebo District School Board
President (with wife), Ireland Dublin Mission, 1983-1986
Missionary (with wife), Connecticut Hartford/New Hampshire Manchester Missions, 1986
Special Mission to Amman, Jordan (with wife), 1989-1991

Honors and Awards:

Bronze Medaille d'Honneur des Epidemics by the Government of France (for research done in Madagascar), 1952
National Order of Vasco Nunez de Balboa – in the grade of Caballero (equivalent to knighthood) (for research conducted in Panama), 1966
BYU Master Teacher Award, 1971
College of Biology and Agriculture Creative Achievement Award, 1978
BYU Emeritus Association Special Recognition Award, 1995
Presidential Citation and Medallion to Vernon John Tipton and Norma Russell Tipton (“for a lifetime of humanitarian service and of fostering goodwill to individuals in many countries of the world, as well as for dedicated service at BYU and in the community”), Brigham Young University, 1997.

Publications:

Tipton, VJ. New distributional records for Utah Siphonaptera. *Great Basin Naturalist* 10:62-65, 1950.

Tipton VJ, and Allred DM. New distribution records of Utah Siphonaptera with the description of a new species of *Megarhroglossus* Jordan and Rothschild 1915. *Great Basin Naturalist* 11:105-114, 1951.

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Fairchild GB, Kohla GM, and Tipton VJ. The ticks of Panama (Acarina: Ixodoidea). In *Ectoparasites of Panama*, *Field Museum of Natural History*, Chicago, 167-219, 1966.

Tipton VJ, and Mendez, E. The fleas (Siphonaptera) of Panama. *Field Museum of Natural History*, Chicago, 289-386, 1966.

Wenzel RL, Tipton VJ, and Kiewliez A. The streblid batflies of Panama (Diptera: Streblidae). *Field Museum of Natural History*, Chicago, 405-675, 1966.

Wenzel RL, and Tipton VJ. Some relationships between mammal hosts and their ectoparasites. *Field Museum of Natural History, Chicago*, 677-723, 1966.

Wenzel RL, Tipton VJ, and Fowler CJ. Appendix. Classified list of hosts and parasites. *Field Museum of Natural History, Chicago*, 797-824, 1966.

Yamaguti N, Tipton VJ, Keegan HL, and Toshioka S. Ticks of Japan, Korea, and the Ryukyu Islands. *Brigham Young University Science Bulletin, Biological Series* 15(1):1-227, 1971.

Tipton VJ, and Saunders RC. A list of arthropods of medical importance which occur in Utah with a review of arthropod-borne diseases endemic in the state. *Brigham Young University Sci Bull Biol Ser* 15(2):1-29, 1971.

Tipton VJ, Southwick JW, Ah HS, Yu HS. Fleas of Korea. *Korean J Parasitol* 10:52-63, 1972.

Tipton VJ, Machado-Allison CE. Fleas of Venequela. *Brigham Young University Sci Bull, Biol Ser* 17:1-115, 1972.

Tipton VJ (ed). Medical entomology, mediated instructional kit. Entomological Society of American and Brigham Young University, College Park, Maryland and Provo, Utah, 1974.

Herrin CS, and Tipton VJ. Spinturnicid mites of Venequela (Acarina: Spinturnicidae). *Brigham Young University Science Bulletin, Biological Series* 20(2):1-72, 1975.

Herrin CS, and Tipton VJ. A systematic revision of the genus *Laelaps* s. str (Acari: Mesostigmata) of the Ethiopian region. *Great Basin Naturalist* 36:113-205, 1976.

Barnes AM, Tipton VJ, and Wildie JA. The subfamily Anomiopsyllinae (Hystrihopsyllidae: Siphonaptera). 1. A revision of the genus *Anomiopsyllus* Baker. *Great Basin Naturalist* 37:138-206, 1978 .

Tipton VJ, Stark HE, and Wildie JA. Anomiopsyllinae (Siphonaptera: Hystrihopsyllidae),II. The genera *Callistopsyllus*, *Conorhinopsylla*, *Megarhroglossus*, and *Stenistomera*. *Great Basin Naturalist* 39:351-418, 1979.

Richard Robins Tolman

Position:	Professor	Birthdate:	December 1, 1937
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Address:	Department of Biology Utah Valley University Orem, UT 84058	Birthplace:	Ogden, Utah
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Home Address:	174 E 1825 S Orem, UT 84058 801-224-6271
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Marital Status: Married, August 18, 1964 to Bonnie Alice Bjornn

Children:	David Richard	May, 2, 1966
	Alicia Robin	November 12, 1969
	Brett Bjornn	November 9, 1980
	Matthew Paul	July 8, 1984

Religion:	Church of Jesus Christ of Latter-Day Saints
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Nationality:	U. S. Citizen
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Languages:	Portuguese - speak fluently, read and write Spanish - speak, read and write with declining expertise German - read and write, but much forgotten
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Military:	United States Army and Reserve, 1956-63, 8-year obligation completed. Honorable discharge with rank of Sp-5.
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Education:	<u>Institution</u> University of Utah, SLC, 1963	<u>Degree</u> B.S.	<u>Major</u> Gen. Science Comp.
	University of Utah, SLC, 1964	M.S. Ed.	Science Education (Geology Thesis)
	Oregon State University, 1969	Ph.D.	Science Ed. & Biol.
			<u>Minors</u> General Science History of Science
Full-time Employment:	<u>Institution</u>	<u>Position</u>	<u>Period</u>
	South Davis Junior High School Bountiful, Utah	General Science and Health Teacher	1964-66
	Mount Hood Community College Gresham, Oregon	Instructor, Biology	1968-69
	Biological Sciences Curriculum Study (BSCS), Boulder, CO	Staff Associate Director, International Cooperation	1969-82
	Biological Sciences Curriculum Study (BSCS), Boulder, CO	Project Director, Elementary School Sciences Program	1971-76
	Biological Sciences Curriculum Study (BSCS), Boulder, CO	Project Director, Science, Technology and Society Project	1980-82
	University of Colorado Boulder, CO School of Education	Associate Professor Attendant Rank,	1971-82
	Brigham Young University Provo, Utah	Professor, College of Biology and Agriculture	1982-2003

Brigham Young University Provo, Utah	Chair, Department of Zoology	1994-1998
Brigham Young University Provo, Utah	Associate Dean, College of Biology and Agriculture	1998-2001
Brigham Young University Provo, Utah	Chair, Department of Physiology and Developmental Biology	2001-2002
Utah Valley University Orem, Utah	Professor of Biology	2003-present

Professional Organizations: (Past and Present)

National Education Association
 Oregon Academy of Sciences
 National Association of Biology Teachers
 National Science Teachers Association
 International Union of Biological Sciences (Corresponding member)
 Latin American Association for the Improvement of Biology Teaching (United States Representative)
 Utah Science Teachers Association (President, Executive Secretary)
 Utah Association of Biology Teachers
 Association for the Education of Teachers in Science
 National Association for Research in Science Teaching

BYU Committee Assignments:

Department:

Computer Committee
 Division Coordinator Genetics and Developmental Biology

College:

Bio-Ag Week Committee-Chair

University:

Science Fair Committee

University Curriculum Council
Science Day Committee

Utah Valley University Committees:

Chair, College of Science and Health RTP Committee (2008-2010)
College of Science and Health Advisory Committee
UVU STEM Committee
TICE Biology 1010 Committee
Deans' Teacher Education Council (CSH Representative)

Other Professional Committees:

Utah Science Center Planning Committee
Writing Committee for Elementary Science Core Revision for Utah State - Chair
Writing Committee for Secondary Science Core Revision for Utah State - Chair
Convention Chair. 1995 National Science Teachers Association Area Convention, Salt Lake City, October, 1995
Program Committee. 2001 National Science Teachers Association Area Convention, Salt Lake City, October, 2001
Utah Chair, Presidential Awards for Excellence in Science and Mathematics Teaching
State Science Education Coordinating Committee

Service:

Helped organize the first Central Utah Science and Engineering Fair that is still being held annually at BYU.
Coordinated UVU students' participation as judges in local school, district, and BYU Science and Engineering Fairs.
Conducted and organized statewide summer science inservice courses for Utah science teachers from 1983 to the present.
Missionary for the Church of Jesus Christ of Latter-day Saints in Brazil (May 1958 to November 1960).
Active in Boy Scouts of America.
Various leadership positions at ward and stake level for Church of Jesus Christ of Latter-day Saints.
Member of Sex Education Advisory Committee for Boulder Valley Schools, Boulder, Colorado.
Active in PTA, CAC, and other local public school functions.

Dissertation and Thesis:

Ph.D. Dissertation: "Student Performance in Lower Division Collegiate General Biology Programs in Selected Community Colleges and Four-Year Institutions in Oregon."

Master's Thesis: "A Guide to the Geology of the Central Wasatch Mountains for Teachers in Secondary

Schools.@"

Publications:

Tolman, Richard R. A Guide to the Geology of the Central Wasatch Mountain for Teachers in Secondary Schools. Utah State Department of Education. (Masters degree thesis)

Durst, Harold and Tolman, Richard R. Lexicon of Space-Age Terms (Grades 4-8). National Aeronautics and Space Administration.

Tolman, Richard R. BSCS International News Notes, No. 8.

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Tolman, Richard R. Student Performance in Lower Division Collegiate General Biological Programs in Selected Community Colleges and Four-Year Institutions in Oregon. Journal of Research in Science Teaching, 8 (2), 105-112, 1971.

Mayer, William V., Anderson, Richard C., Cleaver, Thomas J., Robinson, James T., Tolman, Richard. A Formative Evaluation of Biological Sciences: Patterns and Processes. Bureau of Research, Office of Education, U.S. Department of Health, Education, and Welfare, March 1970.

Robinson, James T. and Tolman, Richard R. A Formative Evaluation of ME NOW. Life Sciences for the Educable Mentally Handicapped. Biological Sciences Curriculum Study, Boulder, Colorado, September 1970.

Tolman, Richard R., and Robinson, James T. Formative Evaluation of Unit 1, Digestion and Circulation. BSCS Newsletter 43.

Tolman, Richard R. BSCS Adaptation Projects Around the World. BSCS Newsletter 47.

Tolman, Richard R. BSCS Area Consultant Program. BSCS Newsletter 47.

Tolman, Richard R. A Formative Evaluation of ME NOW; Life Sciences for the Educable Mentally Handicapped. Biological Sciences Curriculum Study, Boulder, Colorado. 1972. (Final Report, Project No. 1520-75, Department of Health, Education, and Welfare, 305 p.).

Tolman, Richard R., Robinson, James, T., and Krasilchik, Myriam. An Evaluation of the Brazilian Adaptation of the BSCS Green Version. Biological Sciences Curriculum Study. Boulder, Colorado. June, 1973.

Tolman, Richard R. Biology Teaching in the United States. Segunda Conferencia Interamericana sobre

la Enseñanza de la Biología. Organization of American States, 1973. (A report given in Spanish at an OAS Conference in Asunción, Paraguay, July 3-7, 1972. **The manuscript was submitted in Spanish and, for some unknown reason, translated back into English. Therefore, I am not responsible for the quality of English in this article.**)

Tolman, Richard R. The BSCS Elementary School Sciences Program: A Status Report. BSCS Newsletter 54.

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Tolman, Richard R. Tools for Inquiry. BSCS Newsletter 57.

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Tolman, Richard R. The BSCS Elementary School Sciences Program: An Overview. BSCS Newsletter.

Tolman, Richard R. A Look at the Achievement Test Score Declines. BSCS Newsletter 65.

Tolman, Richard R. Preliminary Formative Evaluation Report for the BSCS Elementary School Sciences Program. Philadelphia: J. B. Lippincott Company, 1976.

Tolman, Richard R. Content and Skills in the BSCS Elementary School Sciences Program. Philadelphia: J. B. Lippincott Company, 1976.

Tolman, Richard P. (sic) Comment on "The Development of Criterion-Validated Test Items for Four Integrated Sciences Processes." Journal of Research in Science Teaching, 13 (6), 573-574.

Tolman, Richard R. Final Formative Evaluation Report: BSCS Elementary School Sciences Program. Philadelphia: J. B. Lippincott Company, 1977.

Tolman, Richard R. and Barufaldi, James. ESSP: The BSCS Elementary School Sciences Program. The Texas Science Teacher, 7 (1), March 1978.

Tolman, Richard R. That Was No Micrograph. Science and Children, 15 (8), 4.

Tolman, Richard R. and Barufaldi, James P. The Effects of the Biological Sciences Curriculum Study Elementary School Sciences Program on Attitudes Toward Science Among Elementary School Teachers. Journal of Research in Science Teaching, 16 (5), 401-406, 1979.

Tolman, Richard R. "Aportes a la Enseñanza de la Biología." Actualidades Biológicas, 3 (10), 82-86,

Oct.-Dec., 1974.

Tolman, Richard R. and Bishop, Janet L. Experimental Use of the Preschool-Primary Nowicki-Strickland Internal-External Control Scale with Educable Mentally Retarded Students. *The Journal for Special Educators*, XVI (3), Spring 1980.

Tolman, Richard R. Absorption of Peanuts. *The New England Journal of Medicine*, 304 (6), 359, February 5, 1981.

Tolman, Richard R. Difficulties in Genetics Problem-Solving. *The American Biology Teacher*, December, 1983.

Tolman, Richard M. (Sic), "Critique of `Scientific Language and the High School Pupil: Preferential Thinking Styles', by P. P. Lynch." *Investigations in Science Education*, 9 (3), 48-55, 1983.

Tolman, Richard R. (1987). Critique of "Misconceptions about the concept of natural selection by medical biology students," by M. N. Brumby. *Investigations in Science Education*, 13 (2), 27-34, 1987.

Tolman, Richard R., Jeffery, Duane E., and Wixom, Lynn. (1987). A Study of the Teaching of Evolution in Utah County High School Biology Classes. *Utah Academy of Arts, Science, and Letters*.

Tolman, Richard R., Baird, J. Hugh, and Haderlie, Steven. (1988). A study of science education graduates at Brigham Young University. *Science Education* 72 (1), 93-101.

Tolman, Marvin N., Sudweeks, Richard R., Baird, J. Hugh, and Tolman, Richard R. (1988). "Comparing Oral and Silent Reading of Multiple Choice Test Items with Elementary Students." Northern Rocky Mountain Educational Research Association, Jackson, Wyoming.

Sudweeks, Richard R., Tolman, Marvin N., Baird, J. Hugh, and Tolman, Richard R. (1988). Testing Reading Ability vs. Knowledge of Science: A Comparison of Two Methods of Administering Multiple Choice Tests to Elementary School Children. Paper presented at annual meetings of the Northern Rocky Mountain Educational Research Association.

Sudweeks, Richard R., Tolman, Marvin N., Baird, J. Hugh, and Tolman, Richard R. (1988). Testing Reading Ability vs. Knowledge of Science: A Comparison of Two Methods of Administering Multiple Choice Tests to Elementary School Children. Paper presented at annual meeting of the California Educational Research Association.

Tolman, Marvin N., Sudweeks, Richard R., Baird, J. Hugh, and Tolman, Richard R. (1989). "Comparing Oral and Silent Reading of Multiple Choice Test Items with Elementary Students." Final report of research funded by the College of Education.

Tolman, Richard R. and J. Hugh Baird. 1991. Utah Core Curriculum Assessment Item Pool: Life Science. Utah State Office of Education.

Tolman, Richard R. and J. Hugh Baird. 1991. Utah Core Curriculum Assessment Item Pool: Earth-Space Science. Utah State Office of Education.

Tolman, Richard R. and J. Hugh Baird. 1991. Utah Core Curriculum Assessment Item Pool: Physical Science. Utah State Office of Education.

Tolman, Richard R. and J. Hugh Baird. 1991. Utah Core Curriculum Assessment Item Pool: Biological-Earth Science. Utah State Office of Education.

Tolman, Richard R. and J. Hugh Baird. 1991. Utah Core Curriculum Assessment Item Pool: Physical-Earth Science. Utah State Office of Education.

Tolman, Richard R. and J. Hugh Baird. 1991. Utah Core Curriculum Assessment Item Pool: Biology. Utah State Office of Education.

Tolman, Richard R. and J. Hugh Baird. 1991. Utah Core Curriculum Assessment Item Pool: Physics. Utah State Office of Education.

Tolman, M.N., Sudweeks, R., Baird, H., and Tolman, R. Does reading ability affect science test scores? *Science and Children*, September 1991, 44-47.

Hardy, G., Sudweeks, R., Tolman, M., Tolman, R., and Baird, H. Does listening ability affect science test scores? *Science and Children*, October 1991, 43-35.

Sudweeks, Richard R. and Richard R. Tolman. The Use of Empirical Versus Subjective Procedures for Identifying Science Test Items Which Function Differentially for Females and Males. Paper presented at the annual meeting of the National Association for Research in Science Teaching, (63rd, Atlanta, GA, April 8-11, 1990)

Sudweeks, Richard R. and Richard R. Tolman. Empirical Versus Subjective Procedures for Identifying Gender Differences in Science Test Items. *Journal of Research in Science Teaching*, vol. 30, No.1, pp. 3-19, January 1993.

Center for Educational Research and Evaluation:

Tolman, Richard R. An Information Processing Model of Genetics Problem-solving. March 19, 1981.

Robinson, J. T. and Tolman, R. R. Human Sciences Data RESEARCH REPORT File, HSPALL, User's Guide for the Machine-Readable Data File. Center for Educational Research and Evaluation, BSCS, 833 W. South Boulder Road, Louisville, CO, 80027. December 31, 1981.

Robinson, J. T. and Tolman, R. R. Codebook for Human Sciences Data File, HSPALL. Center for Educational Research and Evaluation, BSCS, 833 W. South Boulder Road, Louisville, CO, 80027. December 31, 1981.

Robinson, J. T. and Tolman, R. R. Human Sciences Activity Characteristics and Reviewer Evaluation File, HSACT, User's Guide for the Machine-Readable Data File. Center for Educational Research and Evaluation, BSCS, 833 W. South Boulder Road, Louisville, CO 80027, December 31, 1981.

Robinson, J. T. and Tolman, R. R. Codebook for Human Sciences Activity Characteristics and Reviewer Evaluation File. HSACT. Center for Educational Research and Evaluation, BSCS, 833 W. South Boulder Road, Louisville, CO 80027. December 31, 1981.

Robinson, J. T. and Tolman, R. R. Human Sciences KNOWING Module Data File, HSPKNOW, User's Guide to the Machine-Readable Data File. Center for Educational Research and Evaluation, BSCS, 833 W. South Boulder Road, Louisville, CO 80027. December 31, 1981.

Robinson, J. T. and Tolman, R. R. Codebook for Human Sciences KNOWING Module Data File, HSPKNOW. Center for Educational Research and Evaluation, BSCS, 833 W. South Boulder Road, Louisville, CO 80027. December 31, 1981.

Robinson, J. T. and Tolman, R. R. Codebook for Human Sciences SURROUNDINGS Module Activity Data File, SURRACT. Center for Educational Research and Evaluation, BSCS, 833 W. South Boulder Road, Louisville, CO 80027. December 31, 1981.

Jerald B. Johnson, Marta Adair, Byron J. Adams, Daniel J. Fairbanks, Velma Itamura, Duane E. Jeffery, Duane Merrell, Scott M. Ritter, Richard R. Tolman. Evolution Education in Utah: A State Office of Education–University Partnership Focuses on Why Evolution Matters, Evo Edu Outreach, Springer Science, 2009.

Grant Proposals Funded:

Annual science inservice courses funded through NSF and/or Title II since 1983. Inservice courses have been conducted during the academic year and during the annual Summer Science Camp at Park City.

Research and Academic Interests:

Cognitive science - information processing in genetics problem-solving (funded by NSF-RISE)
Computer-assisted instruction and programming
Cognitive development of adolescents
Curriculum development
Evaluation and research design
Statistics - parametric and non-parametric
Bilingual education
Science teacher training and instruction (all levels)

Workshops:

From 1969 to the present time I have presented over 100 workshops on different BSCS materials and other science curriculum projects at a variety of universities, school districts, and national and state conventions. Some of the universities include Emory University, University of Iowa, Florida Atlantic University, Memphis State University, University of Texas, Columbia University, University of California at Davis, University of Northern Colorado, University of Colorado, Harvard University, and others. Some of the conventions include those of the National Science Teachers Association, National Association of Biology Teachers, National Association of Secondary School Principals, National Association of Elementary School Principals, Association for Supervision and Curriculum Development, National Middle Schools Association, Council for Exceptional Children, and others. I have also worked with many school districts around the country providing inservice training for elementary, junior high, middle school, and high school teachers.

Since arriving at BYU in 1982, I have initiated statewide inservice training for science teachers at the elementary and secondary school levels. Funds have been obtained from the National Science Foundation, Utah State Office of Education, Utah State Board of Regents and EESA Title II. I have taught science content, science teaching methods, and multi-disciplinary science teaching methods to teachers in every one of the 40 school districts in the state of Utah. I have also taught courses on the geology of the Wasatch Mountains and Historical Geology of Utah for Alpine, Nebo, Wasatch, and Provo districts.

Writer Contributor of BSCS Materials:

- ME NOW, Life Sciences: A Special Education Program.
- Elementary School Sciences Program (Project Director)
- Me and My Environment: A Special Education Program
- "Kids on the Move" - BSCS Inquiry Film
- "Animal Behavior: Play" - BSCS Inquiry Film
- "Animals on the Move" - BSCS Inquiry Film
- "Animal Behavior: Care and Protection" - BSCS Inquiry Film
- "Life Cycle of Turkeys" - BSCS Inquiry Film
- Human Sciences Program
- Me In The Future
- Biological Science: A Molecular Approach (4th edition author)
- Biological Science: An Ecological Approach (5th edition revision supervisor), Houghton Mifflin, 1982.
- Innovations: The Social Consequences of Science and Technology Program, Project Director
- Biological Science: Interaction of Experiments and Ideas (4th edition author)
- Student Study Guide for Biological Science: A Molecular Approach, 5th edition, D. C. Heath, 1985.
- Scott, Foresman Biology Software Series, 1985
- Hubbard Data Bytes: Astronomy Facts, 1985
- Instructor's Manual for Biology: Life on Earth, Macmillan, 1985
- Biological Science: An Ecological Approach (6th edition author), Kendall/Hunt, 1987
- Biological Science: A Molecular Approach, D. C. Heath, 1989.
- Evolution: Inquiries into Biology and Earth Science, 1987. Videodiscovery, 1992.

Activities with the University of Colorado:

Member, International Activities Committee, 1970-82.
Conducted workshops for Jim Wailes' NSF Summer Institute, 1972-1977.
Assisted in teaching Biology 400 course, 1970-1974.
Member of various doctoral committees (including chairman).
Hosted many domestic and foreign visitors referred to BSCS by the faculty of the School of Education.
Member, Attendant Rank Committee, 1971-82.
Conferred frequently with Harold Anderson on School of Education policies, especially those concerning the training of graduates and undergraduates in Science Education.
Conducted evaluation seminars with doctoral students in School of Education.
Assisted various faculty members with science education presentations.
Panel member - "Creation versus Evolution."

International Activities 1969-1982:

Experience in Latin America

Worked in close liaison with teams adapting and publishing materials in Mexico, Venezuela, Brazil, Uruguay, Argentina, Chile, Peru, and Colombia.

1969-82. Traveled to virtually every country in Latin America to consult with and assist personnel using BSCS materials.

January-February, 1970. Instructor in six-week teacher training seminar in Montevideo, Uruguay, sponsored by the Organization of American States.

1971-1973. Worked closely with Brazilian science educators in the evaluation of the Brazilian adaptation of the BSCS Green Version; co-author of final report.

April, 1972. U. S. representative to the Second Interamerican Conference on Biology Teaching, Asuncion, Paraguay. Presented a major paper (listed under publications) at this conference.

Experience in Europe

April, 1974. Conducted a three-week intensive workshop on BSCS materials for the Gulbenkian Foundation, Lisbon, Portugal.

April, 1974. Conducted a one-week short course on evaluation techniques for the Gulbenkian Foundation, Lisbon, Portugal.

February, 1976. Conducted a two-week workshop on procedures for evaluating textbooks and the BSCS Human Sciences Program for USAID in Lisbon, Portugal.

February, 1977 and April, 1981. Conducted biology teaching seminars for the Portuguese Ministry of Education and assisted biology adaptation team with writing and adapting BSCS materials.

General International Experience

1969-82. BSCS Consultant for International Cooperation. Overseer of BSCS adaptation programs that are used in 60 countries, 16 languages.

Reviewer Experience:

Proposal reviewer for NSF CAUSE program.
A-V materials reviewer for The American Biology Teacher.
Manuscripts to various biology texts.
Proposal reviewer for NSF materials development program.

Honors:

Listed in, Recognized, or member of:

Who's Who in American Education
Notable Americans of 1976-1977
International Who's Who in Community Service
Who's Who in the West, 17th ed., 18th ed.
Phi Kappa Phi
Sigma Xi
Who's Who in the World, 12th ed., 1994
Who's Who in Science and Engineering, 3rd Edition, Marquis Who's Who, New Providence N.J. 1996
Who's Who in the West 1996-1997, 25th Edition
College Teaching Excellence Award, College of Biology and Agriculture, BYU, 1991
Alcuin Fellowship in General Education (BYU), 1991-1994
Governor=s Award for Excellence in Science and Technology, 2000
Richard Peterson Award for Outstanding Achievement in Science Education, Utah Science Teachers Association, 2003
Outstanding Service to Utah's Public Schools in Recognition of Efforts in Teaching the Evolution Professional Development Workshops, 2009
Trustees Award for Excellence, Utah Valley University, 2012

Summary of Innovative Teaching Approaches:

Developed and instituted a series of inquiry-oriented, take-home laboratory activities for Biology 100 students at BYU.
Developed and implemented a computer-based laboratory for Biology 101 students.
Initiated the Biology 101 laboratory course for elementary education majors to provide hands-on laboratory activities that prospective teachers could use with their own classes.
Implemented a computer-driven laser videodisc system for slide and motion picture projection in Biology 100 and Zoology 334.
Developed, with Hugh Baird of Secondary Education, an individualized Secondary Education 276

course and syllabus.

Utilized cordless microphones for instructor and students to involve more student-instructor interaction in large group sections of Biology 100.

Uses inquiry-oriented, problem-solving approach in teaching all science courses.

Courses Taught at BYU:

Biology 100

Biology 101

Zoology 334

Zoology 338

Zoology 515R

Secondary Education 515R

Zoology 549R

Secondary Education 276

Secondary Education 476

Secondary Education 514R

Rel C 491, 492

Honors 344R

Courses Taught at Utah Valley University:

BIOL 1010

BIOL 4200

BIOL 494R

CHEM 4200

PHYS 4200

GEOL 4200

Bioethics

Supervision of Science Education Student Teachers

Other UVU Responsibilities:

Principal Investigator, UVU Robert Noyce Scholarship Program (funded by NSF), 2009-2015

Principal Investigator, UVU Robert Noyce Phase II Scholarship Program (funded by NSF), 2016-present

CURRICULUM VITAE

Ronald L. Urry

Sources:

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<http://content.lib.utah.edu/utis/getfile/collection/uu-pahsc/id/515/filename/77.pdf>

Deseret News Obituary: <http://www.deseretnews.com/article/563759/Death--Ronald-Lee-Urry.html?pg=all>

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: 5 June 1945, Ogden, Utah

Death: 27 May 1997, Salt Lake City, Utah

Education:

BS, Weber State College, 1970

MS, Utah State University, 1972

PhD, Utah State University, 1973

Employment:

Faculty Member, University of Rochester Medical School, 1973-1976.

Faculty Member, Department of Zoology, Brigham Young University, 1976-1982

Professor, Division of Urology, Department of Surgery, University of Utah Medical School

Adjunct Faculty Member, Department of Obstetrics and Gynecology, Laboratory Director, University Hospital Fertility Center, University of Utah, 1982-1997

Established the In Vitro fertilization program, University of Rochester, Minnesota

Teaching:

Applied Human Physiology

Environmental Physiology

Publications:

Carrell DT, Wilcox AL, Urry RL. Effect of fluctuations in temperature encountered during handling and shipment of human cryopreserved semen. *Andrologia* 28:315-319, 1996.

Carrell DT, Peterson CM, Urry RL. The binding of recombinant human relaxin to human spermatozoa. *Endocr Res.* 21:697-707, 1995.

Peterson CM, Hatasaka HH, Jones KP, Poulson AM Jr, Carrell DT, Urry RL. Ovulation induction with gonadotropins and intrauterine insemination compared with in vitro fertilization and no therapy: a prospective, nonrandomized, cohort study and meta-analysis. *Fertil Steril.* 62(3):535-544, 1994.

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Urry RL, Dougherty KA, Child SA, Fernandez F, Linke CA, Carstensen EL. Ultrasound and spermatogenesis in the rat. *Ultrasound Med Biol* 14:213-217, 1988.

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Frehn JL, Urry RL, Ellis LC. Effect of melatonin and short photoperiod on delta 4-reductase activity in liver and hypothalamus of the hamster and the rat. *J Endocrinol* 60:507-515, 1974.

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Frehn JL, Urry RL, Balph DF, Ellis LC. Photoperiod and crowding effects on testicular serotonin metabolism and lack of effects on melatonin synthesis in Uinta ground squirrels (*Spermophilus armatus*). *J Exp Zool* 183:139-144, 1973.

Urry RL, Jaussi AW, Ellis LC. Simple microradiometric technique for the rapid measurement of monoamine oxidase activity in rat testicular minced and teased-tubular preparations. *Anal Biochem* 50:549-557, 1972.

Ellis LC, Jaussi AW, Baptista MH, Urry RL. Correlation of age changes in monoamine oxidase activity and androgen synthesis by rat testicular minced and teased-tubular preparations in vitro. *Endocrinology* 90:1610-1618, 1972.

Urry RL, Barfuss DW, Ellis LC. Hydroxyindole-O-methyl transferase activity of male rat pineal glands following hypophysectomy and HGG treatment. *Biol Reprod* 6:238-243, 1972.

CURRICULUM VITAE

Kent M. Van De Graaff

Sources:

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<http://www.worldcat.org/identities/lccn-n84-18007/>

Pub Med: <http://www.ncbi.nlm.nih.gov/pubmed>

<http://www.legacy.com/obituaries/deseretnews/obituary.aspx?pid=15907086>

UA 1195 Box 2 Folder 10, Department of Zoology Records, L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: 21 May 1942, Ogden, Utah

Death: 7 December 2005, Providence, Utah

Education:

BS, Zoology, Weber State College, 1965

MS, Zoology, University of Utah, 1969

PhD, Zoology, Northern Arizona University, 1974

MA, Myoneurology, Northern Arizona University, 1974

Employment:

Laboratory Assistant, Weber State College, 1964-1965

Teaching Assistant, University of Utah, 1965-1969

Assistant Curator of Mammals, 1966-1968

Field Researcher, International Biological Programs, 1970-1972

Instructor, Northern Arizona University, 1972-1973

Assistant Professor, Veterinary Medicine, University of Minnesota, 1973-1975

Assistant Professor, Department of Zoology, Brigham Young University, 1975-1979

Associate Professor, Department of Zoology, Brigham Young University, 1979-1988

Professor, Department of Zoology, Brigham Young University, 1988-1996

Professor, Department of Zoology, Weber State University, 1996-2005

Teaching:

Elementary Human Anatomy
Advanced Anatomy
Comparative Vertebrate Anatomy
Herpetology

Professional Experience:

Museum specimen preparation, Museum of Life Science, Weber State College, 1964
Analysis of vertebrate remains from Indian ruins, Department of Anthropology, University of Utah, 1967-1969
Display preparation, Natural History Museum, University of Utah, 1968-1969
Analysis of vertebrate remains from Indian ruins, Department of Zoology, Northern Arizona University, 1973
Consultant, Saunders Publishing Company, 1982-1984
Consultant, Prentice Hall Publishing Company, 1986-1988

Honors and Awards:

Kiwanis Conservation Scholarship to Weber State College, 1960-1961.
Teaching Assistantship to University of Utah, 1965-1970.
American Society of Mammalogists' A. Brazier Howell Honorarium, 1972
Brigham Young University Professor of the Month, Blue Key Honor Fraternity, 1978
Who's Who in American Scientists
Outstanding Achievement and Service Award, Department of Zoology, 1984
Outstanding Teacher Award, Division of Continuing Education, 1984
Teacher of the Year, Graduating Students in Zoology, 1985, 1986, 1987, 1988, 1989
College Teaching Excellence Award, 1985
Outstanding Student Advisement Award, BYU Pre-professional students, 1985
Karl G. Maeser Teaching Award, 1986
Karl G. Maeser Distinguished Teacher Award, Brigham Young University, 1989
Alcuin Fellowship, Brigham Young University, 1990

Professional Memberships:

American Society of Mammalogists
American Society of Zoologists
American Society of Veterinary Anatomists
Southern California Academy of Scientists
Phi Sigma

Committee and Service Assignments:

Faculty Advisor, Thai Students International, 1978-1982
Pre-professional Advisement Committee, 1979-1980
Faculty Advisor, Blue Key Honor Society, 1979-1983
Pre-professional Development Committee, 1979-1981
BYU Faculty Advisory Council, 1982-1985
Acting Division Coordinator, 1986
Publicity Coordinator, Department of Zoology
Benson Scholarship Selection Committee

Publications:

Van De Graaff KM, Balda RP. Importance of green vegetation for reproduction in the Kangaroo Rat, *Dipodomys merriani*. *J Mammal* 54:509-512, 1973.

Reichman DJ, Van De Graaff KM. The occurrence of an abnormal coat color in *Peromyscus eremicus*. *Ariz Acad Sci* 8:91, 1973.

Reichman OJ, Van De Graaff KM. Seasonal activity and reproductive patterns of five species of Sonoran Desert rodents. *Amer Midland Nat* 90:118-126, 1973.

Van De Graaff KM. Comparative developmental osteology in three species of desert rodents, *Peromyscus eremicus*, *Perognathus intermedius*, and *Dipodomys merriami*. *J Mammal* 54:729-741, 1973.

Franz CE, Reichman OJ, Van De Graaff KM. Diets, food preferences and reproductive cycles of some desert rodents. *US/IBP/Desert Biome Research Memorandum RM 73-74*, 128 p, 1973.

Van De Graaff KM. A rehabilitation and conservation program for raptorial birds in Minnesota. *Defenders of Wildlife* 49:28-30, 1974.

Reichman OJ, Van De Graaff KM. Association between ingestion of green vegetation and desert rodent reproduction. *J Mammal* 56:503-506, 1975.

Van De Graaff KM. What a veterinarian should know about skunks. *Minn Veterinarian* 15:27-30, 1975.

Van De Graaff KM. *Introduction to Anatomy. Lecture syllabus for elementary human anatomy*, Morton Publishing Inc, Denver, 306 p, 1977.

Van De Graaff KM, Frederick EC, Williamson RG, and Goslow GE. Motor units and fiber types of primary ankle extensors of the skunk (*Mephitis mephitis*). *J Neurophysiol* 40:1424-1431, 1977.

Van De Graaff KM, Rhees RW. *Human function and structure – study guide*. McGraw-Hill Book Co, New York, 261 p, 1978.

Van De Graaff KM. *Human Anatomy Laboratory Textbook*, Wm C Brow Publ Co, Dubuque, 322 p, 1981.

Van De Graaff KM, Harper J, Goslow GE. Analysis of posture and gait selection during locomotion in the striped skunk (*Mephitis mephitis*). *J Mammal* 63:582-590, 1982.

Goslow GE, Van De Graaff KM. Hindlimb joint angle changes and action of the primary ankle extensor muscles during posture and locomotion in the striped skunk (*Mephitis mephitis*). *J Zool (London)*:197:405-419, 1982.

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Van De Graaff KM. *Human Anatomy*. Wm C Brown Publ Co, Dubuque, 677 p, 1984.

Van De Graaff KM. *An Anatomical Study of the Human Body*. Morton Publ Co, Denver, 312 p, 1984.

Van De Graaff KM, Fox SI. *Concepts of Human Anatomy and Physiology*. Wm C Brown Co, Dubuque, 1126 p, 1986.

Fox SI, Van De Graaff. *Concepts of Human Anatomy and Physiology: Laboratory Manual (Fetal Pig Version)*. Wm C. Brown Co, Dubuque, 450 p, 1986.

Van De Graaff KM. *Human Anatomy and Physiology Study Guide*. Wm C. Brown Co, Dubuque, 275 p, 1986.

Van De Graaff KM. *Anatomy and physiology of the gastrointestinal tract*. *Pediatr Infect Dis* 5 (1 Suppl):S11-6, 1986.

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Zimmerman SS, Davis TV, Van De Graaff KM. *Computer Review of Human Anatomy and Physiology*. 10 floppy disks (IBM PC and Apple IIe/11c). Wm C. Brown Co, 1987.

Van De Graaff KM. *Laboratory Manual to Accompany Human Anatomy*, 2nd ed. Wm C Brown Publ Co, Dubuque, 262 p, 1988.

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Van De Graaff KM and Fox SI. *Concepts of Human Anatomy and Physiology*, 2nd ed. Wm C. Brown Publ Co, Dubuque, 1989.

Fox SI and Van De Graaff KM. *Concepts of Human Anatomy and Physiology: Laboratory Manual (Cat Version)*, 2nd ed. Wm C Brown Publ Co, Dubuque, 460 p, 1989.

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Van De Graaff KM and Rhees RW. *Study Cards for Human Anatomy and Physiology*. Wm C Brown Publ Co, Dubuque, 300 cards, 1989.

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Van De Graaff KM. Physical Body. In *Encyclopedia of Mormonism*, Macmillan, New York, New York, p 1080-1081, 1992.

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Schulthies SS, Francis RS, Fisher AG, and Van De Graaff KM. Does the Q angle reflect the force on the patella in the frontal plane? *Phys Ther* 75:24-30, 1995.

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Van De Graaf KM, Morton DA, and Crawley JL. *A Photographic Atlas for the Anatomy and Physiology Laboratory, 7th Edition*. Morton Publishing Company, Dubuque, Iowa, 2011. (13 editions published between 1992 and 2015.)

Presentations (Partial List):

Comparative Developmental Osteology in Three Species of Desert Rodents, American Society of Mammalogists Meetings, Tampa, Florida, June 1972.

Morphological and Physiological Adaptations of Desert Rodents. Arizona Academy of Sciences Meetings, Prescott, Arizona, 1972.

Seasonal Activity Patterns in Desert Rodents. AIBS Meetings, 1972, Minneapolis, Minnesota, 1972.

Correlation of Bacula to Age and Fecundity in Desert Rodents. ASZ Meetings, Houston, Texas, 1973.

A Synopsis of Desert Ecology, Ecological Discussion Group, Hamline University, 1974.

Comparative Developmental Osteology in Three Species of Desert Rodents. Zoology Seminar, North Dakota State University, 1974.

Motor Units and Action of Extensor Muscles of the Hind Limb in the Striped Skunk. American Society of Zoologists Morphology Meeting, Tucson, Arizona, 1974.

Morphological and Physiological Parameters in Carnivore Locomotion. Department of Human Anatomy Seminar, University of Minnesota, Minneapolis, 1975.

Reproductive Strategies of Desert Rodents in the Sonoran Desert. Department of Entomology, Fisheries and Wildlife Invited Seminar Series, 1975.

Analysis of Mustelid Locomotion, Utah Academy of Sciences, Arts, and Letters Meetings, Dixie College, St. George, Utah, 1977.

Morphological and Physiological Parameters of Locomotion in the Striped Skunk, American Society of Mammalogists Meetings, Michigan State University, 1977.

Comparative Locomoter Patterns in Plantigrade and Digitigrade Vertebrates. American Society of Veterinary Anatomy Meetings, 1978.

Coronary Circulation in Vertebrates. American Society of Veterinary Anatomy Meetings, Washington DC, 1980.

Posture and Locomotion in the Striped Skunk. American Society of Zoologists Meeting, Seattle, Washington, 1980.

Brain Research – An Update. BYU Forum Address, July 5, 1983.

Exploring the Human Mind. Honor's Colloquium Address, BYU, 1985.

Brain Research – An Update. Ricks College, Idaho, 1985.

Clinical Aspects of Human Anatomy. Eleventh Annual Conference of Prehospital Emergency Care and Crisis Intervention, Salt Lake Sheraton Hotel, 1987.

Comparative Limb and Locomoter Adaptations in Two Malaysian Rodents: *Lenothrix canus* and *Berylmys bowersi*. American Society of Zoologists National Meetings, San Francisco, California 1988.

CURRICULUM VITAE

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Science Citation Index, Biosis

UA 1195, Box 2, Folder 15, Department of Zoology Records, L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University

Education:

BS, Brigham Young University, 1961

MS, Brigham Young University, 1964

PhD, University of Wisconsin, 1967

Employment:

Faculty Member, Department of Zoology, Brigham Young University, 1966-1978

Teaching:

Ichthyology

Animal Biology

Comparative Vertebrate Anatomy

Publications:

White DA, Kenison LT, Bradshaw JS, Loveridge DA, Pratt J, Barton R, Fuhrman DK, Harding W. Nutrient pollution (Eutrophication) and its biological consequences in Utah Lake. Proc Twenty-third Ann Meeting Utah Mosquito Abatement Assoc Oct 5, 1974.

Barton JR, Bradshaw JS, White DA. The changing biota of Utah Lake. *Proc Utah Acad Sci Arts, Lett* 46:133, 1969.

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Lewellen, Gale R. and David A. White. The yellow perch fisheries of Deer Creek Reservoir, Utah, with notes on parasitism by *Lingula intestinalis*. *Great Basin Nat* 31:169-176, 1971.

Barton JR, White DM, Winger PV, Peters EJ. The effects of highway construction on fish habitat on the Weber River near Henefer Utah. Ecological Impact of Water Resources Development, Bureau of Reclamation Publication, 1972.

Winger, Parley V., Edward J. Peters, Michael J. Donahoo, James R. Barnes, and David A. White. A checklist of the macroinvertebrates of the Provo River, Utah. *Great Basin Nat* 32:211-219, 1972.

Bradshaw JS, Loveridge EC, Rippe KF, Peterson JL, White DA, Barton JR, Fahrman DK. Seasonal variations in residues of chlorinated hydrocarbons in the water of the Utah Lake Drainage system – 1970-1971. *Pesticides Monitoring J* 6:166-170, 1973.

White DA. Selective predation of albino rainbow trout (*Salmo gairdneri*) by Bonneville mottled sculpin (*Cottus bairdi semiscaler*). *Proc Utah Acad Sci, Arts, Lett* 51:66-68, 1974.

White DA, Sakamoto CJ. A probable relic population of the Bonneville cutthroat (*Salmo clarki* Utah) Suckley:Salmonidae) in Salt Lake County, Utah. *Proc Utah Acad Sci, Arts, Lett* 51:66-68, 1974.

Sakamoto CJ, White DA. A growth and fecundity study of Utah Lake walleye spawning on the Provo River. *Proc Utah Acad Sci, Arts, Lett* 51:69-72, 1974.

White DA. The infection of immature aquatic insects by larval *Paragordius* (Nematomorpha). *Great Basin Nat* 29:44, 1979.

CURRICULUM VITAE

Clayton M. White

Source: Professional Dossier (Updated 2012) submitted by Clayton M. White

Education:

BA, Zoology, University of Utah, 1960

PhD, Zoology, University of Utah, 1968

Employment:

Assistant Curator and Teaching Assistant, University of Utah, 1959-1962; 1963-1965

Teaching Assistant, Curatorial Work at Museum, University of Alaska, 1962-1963

Laboratory and Teaching Assistant and Diener, College of Medicine, Department of Pathology, University of Utah, 1965; 1966-1968

Instructor and Acting Curator of Ornithology, University of Kansas, June-August 1965

Instructor and Research Fellow, Cornell University, 1968-1970

Assistant Professor of Zoology, Brigham Young University, 1970-1974

Associate Professor of Zoology, Curator of Ornithology, Brigham Young University, 1974-1978

Vertebrate Ecologist (Tec. Rep), Division of Biomedical and Environmental Research, U.S. Energy Research and Development Administration, Program Headquarters, Washington DC, 1975-1976

Professor of Zoology and Curator of Ornithology, 1978-2009

Adjunct Professor of Zoology, Boise State University, 1988-2000

Professional Experience:

Summer employee, Ecologist, Ornithologist and Botanist, University of Utah Floral and Fauna Investigations, Flaming Gorge Reservoir Basin, 1959.

Summer employee, Ecologist and Ornithologist, University of Utah Floral and Faunal Investigations, Navajo Reservoir Basin, 1960.

Research and Field Assistant, "Birds of Utah" under William H. Behle, University of Utah, 1961-62.

Field and Laboratory Assistant, Physiology and Systematics of Redpolls, under B. Kessel, University of Alaska, 1962-63, funded through NSF.

Field Technician, Physiology of Ptarmigan under George West and Lawrence Irving, Laboratory of Zoophysiology, Institute of Arctic Biology, University of Alaska, Summer 1964, funded through NSF and NIH.

Associate Investigator, with T. Cade on Grants from U.S. Fish and Wildlife and Arctic Institute of North America, "Peregrines and Pesticides in Alaska," Yukon River (1966), Colville River (1967-69).

Associate Principle Investigator, "Ecology of Cliff Nesting Birds in Alaska," U.S. IBP Tundra Biome, 1971-72, funded through NSF. Associate Investigator with F. S. L. Williamson, Smithsonian Institution,

"Avifauna Investigation of Amchitka Island, Alaska," Funds from U.S. A E C and Battelle Laboratories, 1969-1974, for the underground nuclear testing program.

Consultant, Battelle Memorial Institute Columbus Labs, Impact of Gas pipelines on Gulf Coast of Louisiana and Arctic Slope of Alaska. 1972-1975.

Consultant, General Research Corporation, Environmental Studies of Nevada Continental Operation Range, 1974, for low level supersonic military flights.

Special Temporary Employee and Observer, U.S. Fish and Wildlife. "Impact of Alaska Pipeline; Impact of Alaskan Reservoir Basins; and Reintroduction of Endangered Species in Alaska," Summers, 1970,1972,1974, 1975.

Invited Senior Researcher, Victoria Fisheries and Wildlife Division, Victoria, Australia, Sept.-Nov. 1976, Sept-Nov, 1977, Oct-Nov, 1978, Work on "Population Dynamics of Australian Raptors."

Project Leader, June-Aug. 1977, "Ecological Profile of Raptors and their habitat in western Alaska," for BLM, Alaska office, a study of endangered species for the D-2 lands in the Alaskan Native Lands Claims Settlement Act.

Consultant, Vaughn Hansen Associates, "Endangered Species and Coal Development in Utah." 1977-1980.

Consultant, Dow, Lohnes and Albertson Law Offices and Pittston Oil Co., "Endangered Species and the Eastport, Maine Refinery," 1978-79.

Consultant, Coastal States Energy Co., "Endangered species, birds and energy development." 1979-1982.

Principal Investigator, "The Effects of Geothermal Development on Ferruginous Hawks," Department of Energy funds thru EG&G, Idaho, and U.S. Fish and Wildlife Service, 1978-1980.

Member, Scientific Advisory Committee, On Potential Impact of Space Shuttle Sonic Booms on the Biota of the California islands, Hubbs/Sea World Research Inst, 1978-1979.

Co-investigator, "Peregrine falcon nesting habitat survey on the Six Rivers, Mendocino, Klamath, and Shasta – Trinity Nat'l. Forests," U.S. Forest Service, 1979.

Co-Investigator, "A survey of North American Migrant Peregrine Falcons in South America," U.S. Fish and Wildlife Service project, 1979-80, work in Argentina, Brazil and Peru.

Co-investigator, "Peregrine falcon nesting habitat survey on U.S. Forest Service lands along the west slope of the Sierra Nevada Mountains -1980" and "Fremont National Forest, Oregon." U.S. Forest Service, 1980.

North American Coordinator, Bird of Prey World Working Group, International Council for Protection of Birds, International Union for the Conservation of Nature and Natural Resources. Merges, Switzerland, 1979-2002.

Co-Investigator, "Evaluation of Warner Valley, Oregon for reintroduction of nesting Peregrine Falcons," U.S. Bureau of Land Management, May 1982.

Co-investigator, "Effects of Carbofuran Pesticide Formulations on Birds in Corn and Alfalfa", F.M.C. Corporation, 1982.

Consultant, Bechtel Group, Inc., "Survey of Endangered Species at Gibson Dome and Elk Ridge study areas, Paradox Region, Utah" for siting of underground nuclear waste dumps, 1982, 1983, and 1985.

Consultant, Bechtel Group, Inc., "Threatened and Endangered Species Along the Proposed CO2 and Phosphate Slurry Pipeline, Wyo., Utah and Colo." for the Chevron Corporation, 1984-1985.

Consultant, Utah Department of Transportation, Assessment of endangered species along highways, on retainer, 1984-2002.

Member of exchange team/workshop on Bird Banding with U.S. Fish Wildlife Service, to the Peoples Republic of China, 1988.

Participant, U.S./U.S.S.R. Environmental Exchange Program, U.S. Fish Wildlife Service, to Kazakhstan, S.S.R., Summer 1991.

Expert Witness, Exxon Company, U.S.A., on Exxon Valdez Gulf of Alaska (Prince William Sound) oil spill, and consultant, Alaska Biol. Res. Inc., 1989-1992.

Consultant, Lockheed Environmental Services Division, Las Vegas, NV., on EPA's EMap Arid Field Study, 1994.

Consultant, Baseline Data, Inc., Salt Lake City and Orem, UT., on West Davis/Legacy Highway development, Davis and Salt Lake Counties, UT., 1997-1998; Fiber optics transmission lines, Ogden, Utah to Boise, Idaho, 1999; Fiber optics transmission line, Tooele, Utah to Nevada border, 2000; Fiber optics transmission line, Vernon to Dugway, Utah 2001 - plus a series of other contracts

Consultant, ShawPittman Law Offices, Washington D.C., in collaboration with Nuclear Regulatory Commission's Atomic Safety and Licensing Board, for PES' proposed Skull Valley, Utah, facility, 2000 - 2002.

Alternate Member (from the Academic area) on the Research Management Team for the Bureau of Land Management, Alaska , (BLM) on oil development within the National Petroleum Reserve-Alaska (NPR-A), 2001-2003.

Consultant, Callister Nebeker & McCullough, Law Firm, feral pigeon contamination issue, 2008

Teaching Experience:

Brigham Young University (1970-2009)

Honors 211R, 221R, 241R: Shaping the Modern Mind. Colloquium in Arts, Letters, and Sciences. Team taught

Honors 221R, Sect 400: Community, the Spirit, and the Environment Colloquium in Arts, Letters, and Sciences. Team taught

Biology 200: General Biology for Zoology majors. Team taught, I taught ecology, evolution and animal diversity.

Zoology 203: Vertebrate Zoology. Diversity and evolution of vertebrates.

Zoology 204: Animal Diversity. Team taught I taught vertebrate portion on structure, function, and evolution.

Zoology 334: Nature Study Methods. Natural history for primary education majors.

Zoology 344: Natural History of Wildlife.

Zoology 446: Ornithology. Ecology, natural history and evolution of birds.

Zoology 475: Evolutionary Science. Team taught Organic evolution, 1 taught evidence portion using radiometric dating, fossil record, biogeography, anatomy, and biochemical evidence.

Zoology 549: World Bird Families. A survey of birds of the world using museum specimens.

Zoology 549: Raptor Biology. The ecology and natural history of birds of prey.

Zoology 601 : Zoogeography. Study of the distribution of animals as explained by historical data and

contemporary theory.

Seminar on Conservation Biology. Team taught

Cornell University (1968-1970)

Vertebrate Zoology: Team taught. I taught portion on birds.

Ornithology: Biology of birds.

University of Kansas (1965-1966)

Biogeography: Team taught Distribution of life on earth.

Tropical Biology: Team taught I taught bird portion of tropical species.

Ornithology: Biology of birds.

University of Alaska (1962-1963)

General Zoology: Teaching and laboratory assistant

Ornithology: Teaching and laboratory assistant, Assistant curator.

University of Utah (1959-1962. 1964-1965. 1966-1968)

Pathology: Teaching assistant at medical school for 2nd year medical students.

Ornithology: Teaching assistant

Vertebrate Natural History: Teaching assistant

Boise State University (1989)

Seminar. Raptor Biology and Evolution (Fall quarter).

Research Activities (past and present):

See also Professional Experiences for many of the activities

- (1) U.S. Forest Service, "Raptors in the Uinta Forest," 1972-75. \$3,000 per year
- (2) U.S. Fish and Wildlife, "Peregrine Survey of Utah and Central Nevada 1972-74. \$4,000.
- (3) Seabird/Plutonium Contamination Study, Thule, Greenland, AIBS-ERDA , 1975, \$4,200.
- (4) Victoria Fisheries and Wildlife, Australia, "Raptor Populations." 1976, \$4,800; 1977, \$5,200; 1978, \$5,000.
- (5) E.G. and G., "Bird studies at Raft River Geothermal site." Summer, 1977-1979, \$35,000.
- (6) Ecological relationships of vertebrates to spruce budworm control and forest management practices, U.S. Forest Service, \$25,000.
- (7) Peregrine Falcon survey of Northern California National Forests, U.S. Forest Service, 1979, \$34,000.
- (8) Gas pipelines and Bald Eagles, Northwest Pipeline Co., 1979, \$4,000.

- (9) Migrant North American Peregrine Falcons in South America, U.S.F.W.S., 1979-80, \$50,000.
- (10) Peregrine Falcon Survey, Sierra Nevada Mountains, California and Southern Oregon, U.S. Forest Service, 1980, \$30,000.
- (11) Raptors of the proposed MX regions, Utah and Nevada, HDR Sciences, 1980, \$12,000, 1981, \$12,000.
- (12) Endangered Species on Proposed Nuclear Waste Dump Sites, Bechtel Group, Inc., 1982, \$13,000, 1983, \$12,000, 1985, \$8,000.
- (13) Endangered Species and Raptors along the CO₂/Phosphate Pipeline, Bechtel Group and Chevron Corporation, 1984-85, \$43,000.
- (14) Endangered Species, UDOT, 1984-1989, \$20,000.
- (15) Biology of Peregrine Falcons in the Fiji Islands, Chemtronics, Inc., San Diego, CA, 1985-1991, \$71,000.
- (16) Goshawk studies, Dixie Nat'l Forest, 1991, \$21,000, 1992, \$16,000.
- (17) Preliminary investigations of the "Altay (Altai)" Falcon, USSR (Kazakhstan and southern Russia), Trust for Mutual Understanding, \$ 17,000, 1991.
- (18) Goshawk Studies, Ashley Nat'l Forest, 1992, \$12,000.
- (19) Endangered Species, Katami Nat'l Park, Alaska , 1993, \$51,000.
- (20) Biology of Peregrine Falcons in Fiji and Vanuatu, Endangered Species Recovery Council (through Dan Brimm), San Diego, CA, 1992-9, \$ 40,000; 1996-98, \$71,000; 1999-2001, \$85,000 (total of \$692,000 between 1985-2003).
- (21) The Mountain Plover in the Uintah Basin, Utah Div. Wildl. Res. and USBLM, 1996, \$ 14,300; 1997, \$17,000; 1998, \$15,000; 1999-2000, \$15,000; 2001-2003, \$30,000; 2004, \$12,000 (total of \$119,438 since 1996).
- (22) Possible impact on flammulated owls from the Winter Olympics development at Snow Basin, UT., \$21,000.
- (23) Northern Goshawk movements as determined by satellite telemetry, U.S. Forest Service, 2000-01, \$110,000; 2001-2002, \$115,000; 2003, \$85,000 (total of \$310,000).

Research Interests:

- (1) Plastics in stomachs of Sea Birds
- (2) Winter Lipid Deposition in Arctic Finches
- (3) DDE in the Birds of Utah Lake Ecosystem (in conjunction with Utah Board of Health)
- (4) Ecology of Peregrine Falcons in Alaska
- (5) Birds of Aleutian Islands, Alaska
- (6) Captive Breeding of Peregrine Falcon
- (7) Australian Raptors
- (8) Spatial Patterns in Linear Distributed Raptors of the Green River
- (9) Nesting relationship of Buteo in juniper forests
- (10) Biochemical systematics of the family Falconidae
- (10) Biogeography and distribution of Falconiformes
- (11) Biology and Evolution of island Birds (South Pacific)
- (12) Environmental impacts from human activity on the breeding biology of raptors

Publications and Writings:

Books – Author

White, C. M. 2006. Peregrine Quest; From a Naturalist's Field Notebook. Western Sporting Publ., 390 pp.+ appendices.

White, C. M., T. J. Cade and J. H. Enderson. Peregrine Falcons of the World, Lynx Ediciones, Barcelona, Spain, In Press.

Books - Editor:

Murphy, J. R., **C. M. White**, and B. E. Harrell. (eds). 1975. Population Status of Raptors. Raptor Res. Report No. 3. Vermillion, South Dakota, 232 Pp. Senner, S. E. , **C. M. White**, and J. R. Parrish (eds). 1986, Raptor conservation in the next 50 years. Raptor Res. Report No. 5, Provo, Utah, 87 Pp..

Cade, T. J., J. H. Enderson, C. G. Thelander, and **C. M. White** (eds.). 1988, Peregrine Falcon Populations: Their Management and Recovery. The Peregrine Fund Inc., Braun-Brumfeld, San Francisco, California. 949 Pp.

Chapters in Books:

White, C. M. 1969. Breeding Alaskan and Arctic migrant populations of the peregrine. Pp 45-51. In: Peregrine Falcon Populations: Their biology and decline. J. J. Hickey, (ed.) University of Wisconsin Press, Madison.

White, C. M. 1969. Population trends in Utah Raptors. Pp. 359-362. In: Peregrine Falcon Populations: Their biology and decline. J.J. Hickey, (ed.) University of Wisconsin Press, Madison.

White, C. M. 1969. Is there a genetic continuity concerned in eyrie maintenance? Pp.391-397. In: Peregrine Falcon Populations: Their biology and decline. J. J. Hickey, (ed.) University of Wisconsin Press, Madison.

White, C. M. 1975. Studies on Peregrine Falcons in the Aleutian Islands. Pp. 33-50. In: J. R. Murphy and **C. M. White** (eds.). Population Status of Raptors. Raptor Res. Report No. 3, Vermillion, South Dakota.

White, C. M. and R. W. Risebrough. 1977. Polychlorinated biphenyls in the ecosystems, Ch. 25, Pp. 615-625. In: M. L. Merritt and R. G. Fuller (eds) . The Environments of Amchitka Island, Alaska. U.S. ERDA., TiD-26712 Oak Ridge, Tennessee.

White, C. M., F. S. L. Williamson and W. B. Emison. 1977. Avifaunal investigations, Ch. 11 , Pp. 227-260. In: M. L. Merritt and R. G. Fuller (eds.), The Environments of Amchitka Island, Alaska. U.S. ERDA., TiD-26712 Oak Ridge, Tennessee.

White, C. M. 1978. A review of the systematics of Raptors Pp. 221-225. In: Zoo and Wild Animal Medicine. M. E. Fowler (ed.), W. B. Saunders Co., Philadelphia, PA. (Introduction to Ch. 14, Pp. 221-290).

White, C. M., and T. J. Cade. 1976. Long-term trends in Peregrine populations in Alaska, In: First World Conference on Birds of Prey, Vienna, 1975, Proceedings. R. D. Chancellor (ed.), The International Council for Bird Preservation, London Pp. 63-72.

- Porter, R. D. and **C. M. White**. 1976. Status of some rare and lesser known hawks in western United States. In: First World Conference on Birds of Prey, Vienna, 1975, Proceedings. R. D. Chancellor (ed.). The international Council for Bird Preservation, London Pp. 31-57.
- White, C. M.**, L. Sowl and T. Ray. 1976. Raptor survey along the trans-Alaska oil pipeline, 1970-72-74, In: First World Conference on Bird of Prey, Vienna, 1975, Proceedings. R. D. Chancellor (ed.). The International Council for Bird Preservations, London, Pp. 222-228.
- White, C. M.** 1982. Food and other habits in relation to the evolution of the Peregrine Falcon in Alaska, Pp. 174-186, In: W. H. Ladd and P. F. Schempf (eds.) Raptor Management and Biology in Alaska and Western Canada. Proc. FWS/AK/PROC-82, Anchorage, Alaska.
- White, C. M.** 1986, A review of the systematics of raptors, pp. 366-370. In: Zoo and Wild Animal Medicine. M. E, Fowler (ed.), 2nd Ed., W. B. Saunders, Co., Philadelphia (The introduction to Ch. 27, Pp 336-437).
- White, C. M.** 1987, The Peregrine: systematics and evolution. Pp. xii-xxx. In: R. D. Porter, A. Jenkins, and A. Gaski (eds.). Working bibliography of the peregrine falcon. Nat. Wildl. Fed, Sci, Tech. Ser. No, 9. Wash. D.C.
- Boyce, D. A., Jr., and **C. M. White**. 1987. Evolutionary aspects of Kestrel Systematics: a scenario. Pp. 1-21. In: D. M. Bird and R. Bowman (eds.). The Ancestral Kestrel, Raptor Research Reports No. 6, Raptor Res. Found., Inc.
- Ambrose, R. E., R. J. Ritchie, **C. M. White**, P. F. Schempf, T. Swem, and R. Dittrick. 1988. Changes in the status of Peregrine Falcon populations in Alaska , Pp. 73-82, In: Cade, T. J., et al. (eds.). Peregrine Falcon Populations: Their Management and Recovery. The Peregrine Fund, Inc., Boise, Idaho.
- McNutt, J , W., D. H. Ellis, C. P. Garat, T. B. Roundy, W. G. Vasina , and **C. M. White**. 1988. Distribution and status of the Peregrine Falcon in South America, Pp. 237-249. In: T. J., Cade, et al. (eds.). Peregrine Falcon Populations: Their Management and Recovery. The Peregrine Fund, Inc., Boise, Idaho.
- White, C. M.**, D. J. Brimm, and F. Clunie. 1988. A study of Peregrines in the Fiji Islands, South Pacific Ocean, Pp. 275-287. In: T. J . Cade, et al. (eds.). Peregrine Falcon Populations: Their Management and Recovery. The Peregrine Fund, Inc., Boise, Idaho.
- White, C. M.** and D. A. Boyce, Jr. 1988. An overview of Peregrine Falcon subspecies. Pp. 789-810, In: T. J. Cade, et al. (eds.), Peregrine Falcon Populations: Their Management and Recovery. The Peregrine Fund, Inc., Boise, Idaho.
- White, C. M.**, D. A. Boyce, and R. Straneck. 1989. Observations of *Buteo swainsoni* in Argentina, 1984; with comments on food, habitat alteration and agricultural chemicals. Pp. 79-87. In: B-U Meyburg and R. D. Chancellor (eds.). Raptors in the Modern World. Proc. 3rd World Conf. Birds of Prey. Eilat, Israel, 1987.
- White, C. M.**, R. W. Risebrough and S. A. Temple. 1989. Observations on North American breeding Peregrines (*Falco peregrinus*) on the non-breeding grounds in South America, Pp. 89-93. In: B-U Mayburg and R. D. Chancellor (eds.), Raptors in the Modern World, Proc. 3rd World Conf. Birds of Prey, Eilat, Israel, 1987.
- Longmire, J. L., R. E. Ambrose, N. C . Brown T. J. Cade, T. Maechtle, W. Seegar, F. Ward, and **C. M. White**. 1991. Use of sex-linked minisatellite fragments to investigate genetic differentiation and migration of North American populations of the Peregrine Falcon *Falco peregrinus*. Pp 217-229. In: T. Burke, G. Dolf,

A. J. Jeffreys and R. Wolff (eds), DMA Fingerprinting Approaches and Applications, Birkhauser Verlag, Basel, Switzerland.

White, C. M., J. R. Parrish, D. J. Brimm and J. L. Longmire. 1993. Aspects of variation between peregrine falcons: a review with emphasis on Southern Hemisphere populations. Pp.13-24, In: P. Olsen (ed) , Proc. Australian Raptor Studies, Royal Australian Ornithologists' Union, Melbourne, Australia

Emison, W. B., W.M. Bren and **C. M. White**. 1993. Influence of weather on the breeding of *Falco peregrinus* near Melbourne, Pp.26-32, In: P. Olsen (ed.), Proc. Australian Raptor Studies, Royal Ornithologists' Union, Melbourne, Australia.

White, C. M. 1994. Population trends and current status of selected western raptors. Pp. 161-172. In: J. R. Jehl, Jr. and N.K. Johnson (eds.). A century of avifaunal change in western North America. Studies in Avian Biology No, 15.

Johansson, C, P. J. Hardin, and **C. M. White**. 1994. Large-area Goshawk habitat modeling in Dixie National Forest using vegetation and elevation data. Pp. 50-57. In: W.M. Block, M.L Morrison and M.H. Riser (eds.). The Northern Goshawk: Ecology and Management. Studies in Avian Biology No. 16.

White, C. M., P.D. Olsen, and L. F. Kiff. 1994. Family Falconidae, Pp. 216-247. In J. del Hoyo, A. Elliott, and J. Sargatal, (eds.). Handbook of the Birds of the World, Vol. 2, New World Vultures to Guinaefowl. Lynx Edicions, Barcelona, Spain.

White, C. M., R. J. Ritchie, and B. A. Cooper. 1995. Density and productivity of Bald Eagles in Prince William Sound, Alaska, after the EXXON VALDEZ oil spill. Pp. 762-779. In: P. G. Wells, J. N. Butler, and J. S. Hughes (eds.). Exxon Valdez Oil Spill: Fate and Effects in Alaskan Waters. ASTM STP 1219, American Soc, Testing and Materials, Philadelphia, PA.

White, C. M., and L. F. Kiff. 1998. Language use and misapplied, selective "science;" their roles in swaying public opinion and policy as shown with two North American raptors. Pp. 547-560. In: B-U. Meyburg, R.D. Chancellor and J. J. Ferrero (eds.), Holarctic Birds of Prey, Proc. 5th International Conf., World Working Group of Birds of Prey, Badajoz, Spain.

Enderson, J. H., C. M. White, and U. Banasch. 1998. Captive breeding and releases of Peregrines, *Falco peregrinus* in North America. Pp. 437-444. In: B-U. Meyburg, R.D. Chancellor, and J. J. Ferrero (eds). Holarctic Birds of Prey, Proc. 5th International Conf., World Working Group of Birds of Prey, Badajoz, Spain.

White, C. M. and L. F. Kiff. 2000. Biodiversity, island raptors and species concepts. Pp. 633-652. In: R.D. Chancellor and B.-U. Meyburg (eds.). Raptors at Risk. Proc. V World Conf. Birds of Prey and Owls, Midrand, Johannesburg, South Africa, 4-11 Aug 1998. Hancock House, Surrey, B.C., Canada.

Anderson, C. M . and C. M. White. 2000. Recent observations on peregrine falcons *Falco peregrinus* on of Cape Verde Islands, Atlantic Ocean. Pp. 685-689. In: R.D, Chancellor and B.-U. Meyburg (eds,). Raptors at Risk. Proc. V World Conf. Birds of Prey and Owls, Midrand, Johannesburg, South Africa, 4-11 Aug 1998. Hancock House, Surrey, B. C. , Canada.

White, C. M., D. J. Brimm and J. H. Wetton, 2000. The Peregrine Falcon *Falco peregrinus* in Fiji and Vanuatu, Pp. 707-720. In: R.D. Chancellor and B.-U. Meyburg (eds.). Raptors at Risk. Proc. V World Conf. Birds of Prey and Owls, Midrand, Johannesburg, South Africa, 4-11 Aug 1998. Hancock House, Surrey, B. C., Canada.

Hill, R.L. and **C. M. White**. 2002. Three-toed Woodpecker Ecology in a Managed Engelman Spruce Forest, Pp. 81-86. In: Pechacek, P. and W. d'Oleire-Oltmans (eds.). International Woodpecker Symposium. Forschungsbericht, Nationalparkverwaltung, Berchtesgaden, Germany.

Matz, A., T. Swem, P. Johnson, T. Booms, and C. M. White. 2011, Potential for climate change to increase contaminants exposure and effects on Gyrfalcons. Pp. 161-175. In: R.T. Watson, T. J. Cade, M. Fuller, G. Hunt, and E. Potopov, (eds.). Gyrfalcons and Ptarmigan in a Changing World. Vol. 1. The Peregrine Fund Inc., Boise, Idaho.

Forward or preface for books

White, C. M. 1998. FORWARD for - "The Raptors of Arizona," Richard L. Glinski (ed.), University of Arizona Press, Pp. ix-x.

White, C. M. 2003. PREFACE for - "Raptors of Western North America," and "Raptors of Eastern North America," by Brian K. Wheeler, Princeton University Press , 2003: IX - X .

White, C. M. 2009. PREFACE for - "Peregrine Falcon Populations; status and perspectives in the 21st century." Pp. 8-9. Janus z Sielicki and Tdeusz Mizers (eds.), Turut Publ. and Pozari Univ. Life Sci, Press, Pozaii, Poland.

Article — Peer Reviewed and others:

White, C. M. and W. H. Behle. 1960. Birds of Flaming Gorge Reservoir Basin, Utah and Wyoming. *Anthro. Papers, University of Utah* 48:186-208.

White, C. M. and W. H. Behle. 1961. Birds of Navajo Reservoir Basin in Colorado and New Mexico, 1960, *Anthro. Papers, University of Utah* 55:130-51.

White, C. M. and G. D. Lloyd. 1962. Predation on Peregrines by ringtails. *Auk* 79:277.

White C. M. 1962. Prairie Falcon displays accipitrine and circinine hunting methods. *Condor* 64:439-440.

White, C. M. 1963. Botulism and myiasis as mortality factors in falcons. *Condor* 65:442-443.

Richards, G. L. and **C. M. White**. 1963. Notes on the common crow in Utah. *Condor* 65:530-531.

White, C. M. 1963. Unusual behavior of the northern shrike. *Wilson Bull.* 75:459-460.

Behle, W. H., J. B. Bushman, and **C. M. White**, 1963. Distributional data on uncommon birds in Utah and adjacent states. *Wilson Bull.* 75:450-456.

White, C. M. and W. H. Brooks. 1964. Additional bird records for interior Alaska, *Condor* 66:308.

Kessel, B., H. K. Springer, and **C. M. White**. 1964. June birds of the Koiomak River, Yukon-Kuskokwim Delta, Alaska. *The Murrelet* 45(3):37-47.

White, C. M. 1964. Comments concerning Alaskan Peregrine and Gyrfalcon populations. *J. North American Falconry Assoc.* 3(1):9-11.

White, C. M. and H. K. Springer. 1965. Notes on the Gyrfalcon In Western Coastal Alaska. *Auk* 82:104-105.

White, C. M., G. D. Lloyd and G. L. Richards. 1965. Goshawk nesting in upper Sonoran of Colorado and Utah. *Condor* 68:269.

White, C. M. 1965, Roadside raptor count through Utah, Colorado and Kansas. *Bull. Kansas Ornithological Soc.* 16:18-19.

- Welch, F. and **C. M. White**. 1965. Two owls with potential in falconry. *J. North American Falconry Assoc.* 4:15-17.
- White, C.M.** 1966. Notes on food of Swainson's Hawk. *Bull. Kansas Ornithology Soc.* 17(1): 10.
- West, G. C., and **C. M. White**. 1966. Range extensions and additional notes on the birds of Alaska's Arctic Slope. *Condor* 68:302-304.
- White, C. M.** and R. B. Weeden. 1966. Hunting methods of Gyrfalcons and behavior of their prey (Ptarmigan). *Condor* 68:517-519.
- Cade, T. J., **C. M. White**, and J. R. Haugh. 1968. Peregrines and pesticides in Alaska. *Condor* 70:170-178.
- White, C. M.** 1968. Diagnosis and relationships of the North American tundra-inhabiting Peregrine Falcon. *Auk* 85:179-191 .
- Black, H. L. and **C. M. White**. 1968. High localized bird mortality as a function of high insect populations. *Great Basin Naturalist* 28:200.
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- Crawley, J. and **C. M. White.** 1990. Final Report: *Pandion haliaetus* on Flaming Gorge: 1989-1990 breeding season. Report to Utah Div. Wildl. Res. and U.S. Forest Serv., 30 Pp plus 6 maps,
- Sherrod, S. K., B. J. Walton, and **C. M. White.** 1991. Khazakstan, S. S R. initial joint U.S. - U. S. S. R. falcon work, 12-26 J u n e 1991. Report to Mutual Trust for Understanding, 15 Pp.
- Johansson, C. and **C. M. White.** 1991. Dixie National Forest 1991 goshawk project Submitted to Dixie National Forest Cedar City, Utah., 40 Pp.
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- Ellison, A. and **C. M. White.** 1996. Biology and habitat use of mountain plovers in the Uintah Basin. Report to U.S. BLM and Utah Div. Wildl. Resour. 20 Pp.
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- Ellison, A., **C. M. White** and M, Landers. 1998. Mountain Plover surveys on the Monument Butte oil field and habitat relationships. April to August 1997, Submitted to the U.S. BLM, Vernal District and Utah State Div. Wildl. Resources, NE Region. 15 Pp., plus 5 tables.
- Ellison, A., **C. M. White,** and W. Mendel. 1999. Mountain Plover surveys on the Monument Butte oil field; April to August 1998. Submitted to U.S. BLM, Vernal District and Utah Division of Wildlife Resources, Northeastern Region, 13 Pp., plus 5 Tables.
- Lloyd, J. E., **C. M. White** and T. T. Lloyd. 2000. Mountain Plover *Charadrius montanus* populations and nest site selection in the Uintah Basin: A Micro habitat Analysis, Submitted to U.S. BLM, Vernal District and Utah State Division of Wildlife Resources, 19 Pp., plus 6 Tables.

White, C. M. 2002. The Mountain Plover (*Charidrius montanus*) on the Myton Bench area, Uintah Basin: Results of a ten-year study, 20 Pp., plus 3 Fig, and 8 Tables. To Utah Division of Wildlife Resources, Salt Lake City, and Bureau of Land Management, Vernal, Utah.

Academic and Professional Honors, Awards, and Appointments:

Frances B. Roberts Award, Cooper's Ornithological Society, 1968.

Elected member. Laboratory of Ornithology, 1969.

Sigma Xi Grant-In-Aid, 1964.

Chapman Fund Grant, American Museum of Natural History, 1966.

Sigma Xi, ASBYU Research Award, 1973.

Elected member, American Ornithology Union, 1974.

Appointed member, Alaskan Peregrine Falcon recovery team. Office of Endangered Species, Dept. of the Interior 1974-1985.

Appointed member, American Ornithologist Union, Committee on Public Responsibility, 1977.

Appointed member, Advisory Committee for Division of Polar Programs, National Science Foundation, 1978-1985.

Included in American Men and Women in Science, 12th ed.

Board of Directors, Peregrine Fund, Inc., 1983-1991.

Scientific Advisor, Greenland Peregrine Falcon Survey Team, Ohio, 1980-1995.

Board of Advisors, Falcon Research Group, Washington State, 1982-present

Advisory Board, Salt Lake City Tracy Aviary, 1982-2000.

Member, of four member "Blue-Ribbon" panel on California *Condor* status, funded by Sierra Club, Oct 1984.

Advisory Board, Western Foundation for Raptor Conservation, New Mexico, 1986-1990.

Scientific Advisor, Geo. M. Sutton Avian Research Center, University of Oklahoma, 1984-present

Adjunct Professor of Biology, Dept. Biology, Boise State University, 1985-2002.

Nature Conservancy, Utah Advisory Committee, Great Basin Field Office, 1986-1999.

Invited participant 9-person team, U.S. - PRC Bird migration workshop, Qingdao, People's Republic of China, 3-18 October 1988.

Appointed member, American Peregrine Falcon recovery team. Western U.S. Office of Endangered Species (Regions 1, 2, & 6). U.S. Fish and Wildlife. Serv., 1987-1994.

Department Outstanding Achievement and Service Award, 1990-91.

College of Biological and Agricultural Sciences Creative Achievement Award, 1993.

Guest Dinner Speaker, American Birders Association convention, 17-23 June 1996, Park City, Utah.

Karl G. Maeser Research Award (University award), in recognition of extraordinary research, August 1996.

International Game Bird and Conservationists' Association award (cash award), 1996., for work on Red-tailed Black Cockatoo in Victoria, Australia.

"Teacher of Honor Award" from The Student Honor Association, through Nolan Reed, Dean of Students Office, 30 July 2002.

John A. Widsøe University Fellowship, 2002-2004 (research monies award)."

Annual John Tanner Lecture, Monte L. Bean Museum Lecture Series, 21 November 2002, Title of lecture "To Parts Unknown; from the Arctic to the Tropics in search of the Peregrine Falcon."
House of Learning lecture series, BYU, 6 March 2003, title, " From the Arctic to the Tropics in Search of Falcons."

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2. Baker-Gabb, David J. 1982. Comparative ecology and behaviour of Swamp Harriers *Circus approximatus*, Spotted Harriers *C. assimilis*, and other raptors in Australia and New Zealand. Monash Univ., Clayton, Vic. Australia. Ph.D. dissertation.
3. Watson, Richard T. 1986. The ecology, biology and population dynamics of the Bateleur Eagle (*Terathopius ecaudatus*). Univ. Witwatersrand, Johannesburg, South Africa. Ph.D. dissertation.
4. Nielsen, Olafur Karl. 1986. Population ecology of the Gyrfalcon in Iceland, with comparative notes on the Merlin and the raven. Cornell Univ., Ithaca, NY. Ph.D. dissertation.
5. Olsen, Jerry. 1987. The effect of weather on nesting Peregrine Falcons near Canberra, Australia. Univ. of New England, Armidale, N.S.W. Aust. M.S. thesis.
6. Brown, Christopher J. 1988. A study of the bearded vulture *Gypaetus barbatus* in southern Africa. Univ. of Natal, Pietermaritzburg, South Africa. Ph.D. dissertation.
7. Swem, Theodore. 1989. Biology of rough-legged hawks (*Buteo lagopus*) on Alaska's north slope. Boise State Univ., Boise, ID, M.S. thesis.
8. Burton, Andrew Mark. 1991. Resource partitioning between two sympatric goshawks in the Australian wet tropics. James Cook University of North Queensland, Australia, Ph.D. dissertation.
9. Olsen, Penny D. 1991. Aspects of the evolutionary ecology of reproduction of raptors. Australian National Univ., Canberra, Australia, Ph.D. dissertation.
10. Leary, Alan W. 1996. Home ranges, core use areas, and dietary habits of Ferruginous Hawks (*Buteo regalis*) in southcentral Washington. Boise State University, Boise, Idaho, M.S. thesis.
11. Schmidt, Elise Vernon. 1996. Population differentiation in migrating raptors as indicated by mtDNA and morphological variation. Univ. Nevada at Las Vegas, Las Vegas, Nevada, Ph.D. dissertation.
12. Jenkins, Andrew R. 1998. Behavioural ecology of Peregrine and Lanner Falcons in South Africa. Univ. of Cape Town, Rondebosch, South Africa, Ph.D. dissertation.
13. Fuentes, E. Esteban. 2005. Ecology of Raptors in the Canberra Region. Applied Ecology Research Group, University of Canberra, Canberra, ACT, Australia. M.S. thesis.
14. Hurley, Victor Gavin. 2013. Factors affecting breeding success in the Peregrine Falcon (*Falco peregrinus macropus*) across Victoria. Deakin Univ., Melbourne, Australia. Ph.D. dissertation.

Professional Exposure and Meetings:

Assistant Editor, *AUK* (American Ornithologists' Union) 1966.
Editor, *J. RAPTOR RESEARCH* (Raptor Res. Foundation, Inc.), 1977-1987.
Review Editor, *AUK*, *CONDOR*, *WILSON BULLETIN*, 1968-present; *MURRELET*, 1977-present.

Editorial Board, *GREAT BASIN NATURALIST*, 1974-1993.

Recent Literature Submitter, *J. FIELD ORNITHOLOGY*, 1978-2000.

Review proposals for: NATIONAL GEOGRAPHIC SOCIETY, NATIONAL SCIENCE FOUNDATION, AUSTRALIAN RESEARCH COUNCIL

Reviewed submitted papers for: *SCIENCE*, *AMER. NAT.*, *SOUTHWEST NAT.*, *EVOLUTION*, *J. WILDL. MANAGE.*, *CANADIAN J. ZOOLOGY*, *EMU.*, *NATURE (London)*, *RESOURCE PUBLICATIONS* (U. S. FISH AND WILDLIFE SERVICE), *MURRELET (NORTHWEST NAT)*, *WESTERN BIRDS*, *UTAH BIRDS*, *THE CONDOR*, *THE AUK*, *THE WILSON BULLETIN*, *J. FIELD ORNITHOL*, *NATURAL AREAS J*, *CORELLA E L HORNERO*, *JOURNAL OF BIOGEOGRAPHY*, *WESTERN NORTH AMERICAN NATURALIST*, *GREAT BASIN NATURALIST*, *BIOSCIENCE*.

Reviewed book manuscripts for: CORNELL UNIVERSITY PRESS, OHIO STATE UNIVERSITY PRESS, UTAH STATE UNIVERSITY PRESS, BRIGHAM YOUNG UNIVERSITY PRESS, ACADEMIC PRESS, T & A D POYSER PUBLISHER (LONDON), BUTEO BOOKS, MCGRAW HILL PUBL.

Many contributed and invited papers at professional meetings (average two -three per year between 1968 and 2000) with first professional paper given in 1964; Invited papers are not only within the U.S. but also foreign (Too many to list) but recent examples of contributions to meetings are:

1. Fifth International Conference on Birds of Prey, Badajoz, Spain 17-22 April 1995; co-chair (with Vladimir Galushin, Russia) of session entitled Socio-Economic Aspects of Raptor Conservation. Three papers given at conference, a synthesis paper--"Language use and misapplied, selective" science, their roles in swaying public opinion and policy" and two original research papers--"Captive breeding and releases of Peregrine Falcons in North American" and "Survey mapping with Global Positioning Systems (GPS) and Geographic Information systems (GSI); integration of data modelling applications."
2. Invited speaker and session chair, specialist workshop of the Middle East Falcon Research Group, Abu Dhabi, United Arab Emirates, 14-16 November 1995; paper "The Taxonomy of Desert Falcons."
3. Invited speaker, Utah Section of Wildlife Society Annual meeting, Provo, Utah, 8 Feb. 1997; topic "Status of the Peregrine Falcon; is it endangered?"
4. Invited workshop presenter and speaker, 5 presentations given at course entitled, "Al Corso di Formazione Sulle Tecniche e Metodi di Ralascio Degli Uccelli da Preda," for the Associazione Italiana Per i Rapaci, held at Bassano del Grappa, Italy, 26 May-1 June 1997.
5. Midwest Regional Raptor Management and Peregrine Symposium, synthesis paper on "Reflections on the 'Urban Peregrine' Paradigm," Milwaukee Public Museum, 13-14 March 1997.
6. 3rd North American Ornithological Conference, New Orleans, Louisiana, 24-30 September 2002. Paper 1 with Sarah Sonsthagen and Ron Rodriguez, "Year-round movement of northern goshawks (*Accipiter gentilis*) breeding in Utah, USA, using satellite telemetry. Paper 2 with Sarah Sonsthagen and Sandra Talbot "Gene Flow and Genetic characterization of Northern Goshawks (*Accipiter gentilis*) breeding in Utah, USA."
7. Invited speaker and panel member, "Pesticides and Birds-Beyond the Tip of the Iceberg," conference supported by USFWS , American Bird Conservancy, and pesticide industry, Patuxent Research Lab, Laurel, Maryland, 17-20 October 2001 . Formal talk entitled "Are Individuals More Important Than Populations? - Pesticide Effects."

8. Invited speaker at the 56th Annual Conference, Mosquito Abatement Association, "The West Nile Virus and Birds," Zermatt Resort & Spa, Midway, UT, 28-30 September 2003.

Travel and Languages:

Lived in Argentina and Chile, 1956-58; Spanish, fluent, writing. Participated in or conducted research throughout western U.S. and Alaska and in Argentina, Australia, Brazil, Chile, Fiji, Ecuador, Greenland, New Zealand, Vanuatu, and Venezuela. Part of U.S. Fish and Wildlife Service, USA/People's Republic of China exchange team/workshop, 1988.

Part of U.S. Fish and Wildlife Service, USA/USSR Environmental Exchange Program, to Kazakhstan, SSR, 1991.

Professional Memberships and Positions:

Society Positions Held:

American Association for Advancement, Science

American Ornithologists' Union (Committee Member, Elected Member)

Cooper's Ornithological Society

Wilson Ornithological Society

Society of Systematic Zoology

The Society of the Sigma Xi

Raptor Research Foundation Inc. (Chairman, Editor, 1977-1986)

Pacific Seabird Group

International Council for Bird Preservation (U.S. Coordinator, Raptor World Working Group)

American Museum of Natural History (Associate Member)

The Nature Conservancy (Utah Advisory Committee)

Australian Raptor Association

Associate member-None

Utah Advisory Committee

Special Activities and Public Relations:

Newspaper and magazine articles on my research have appeared in: *The National Observer*, *The Washington Post*, *New York Times* (AP release-duplication nationwide), *Time Magazine*, *Wall Street Journal*, and several local U. S. and foreign papers (e.g., *Fiji Times*, 21 July 1997; *Ogden Standard-Examiner*, 22 July 2001), Interviewed on T.V., 1970, 1978, 1982, 1984, 1985, 1986, 1990 and local radio 1977, 1981, 1983, 1986, 2000. Talks to schools, museums, societies, and church groups on research are at the rate of about three per year. Guest Lecturer at: American Museum of Natural History (annual lecture series), Utah Museum of Natural History, Utah Audubon Society, Utah Division of Wildlife Resources Workshop, Utah Aviculturalists Society, Hogle Zoological Gardens Docents.

Committee activities:

University: Pre-dental Committee, 1977-79. The Animal Care Facilities Task Force" under Gary Hooper and Gary Reynolds - 2002.

College: Rank Advancement and Tenure Committee, 1996-2005: Pre-Dental Committee, 1973-75

Department: Departmental level responsibilities (Rank Advancement, Executive Committee, Professional Development, Seminar etc.; too many to list).

Graduate students for whom I was or am Advisor or Major Professor:**M.S. Degree:**

Piatt, Joseph B. Habitat and Time Utilization of a Pair of Nesting Sharp-shinned Hawks (*Accipiter striatus velox*): A Telemetry Study - completed 1973.

Jenkins, M. Alan. Behavior of the Gyrfalcon from hatching to fledging: a time-lapse photographic study – completed 1974.

Sherrod, Steve K. Biology of northern Bald Eagles on Amchitka Island, Alaska - completed 1975.

Beske, Alan E. Goshawk biology in desert mountain ranges - dropped out of program.

Burnham, Wm. H. Breeding biology and ecology of the Peregrine Falcons in west Greenland - completed 1974.

McArthur, Laurence B. Utilization of nest boxes by birds in three vegetational communities with special references to the American Kestrel - completed 1977.

Devine, William A. Breeding Ecology of Peregrine Falcons in Victoria, Australia - completed 1978.

Thurrow, Thomas L. Ecology and behavior of the Gymnogyne (*Polyboroides typus*) - completed 1979.

Jones, Stephen G. Abundance and habitat selection of shore birds at Prudhoe Bay, Alaska - completed 1980.

Parker, Wm. K. The influence of western spruce budworm on avian succession in a grand fir forest - completed 1981.

Williams, Richard N. Breeding ecology of Prairie Falcons at high elevations in central Colorado - completed 1981.

Pruett-Jones, Melinda Anne. Spacing and distribution of bowers in Macgregor's bowerbird - completed 1981.

Lemon, Rodney R. Ecological, nutritional and physiological factors related to Cedar Waxwing feeding in winter in central Utah - completed 1981.

Martin, John W. Aspects of breeding biology and habitat use by Northern Harriers in agricultural situations – completed 1984.

Meese, Robert J. The distribution and density of passerines in west Greenland in relation to Peregrine Falcon nesting sites - completed 1984.

Albuquerque, Jorge L. B. The Peregrine Falcon in southern Brazil: Aspects of winter ecology in an urban environment - completed 1984.

Fristensky, (Looman) Sandra. Productivity, food habits and sexing of Barn Owls in Utah - completed 1985.

Grebence, Brandon. Physiographic characteristics of Peregrine Falcon nesting habitat along the Colorado River System in Utah - completed 1988.

Payne, Val . Effects of subsidence from underground coal mines on Golden Eagle nests - dropped program.

Johansson, Carl. Large-area Goshawk habitat modeling in the Dixie National Forest using vegetation and elevation data - completed 1994.

Haney, Don L. Population dynamics of wintering Merlins (*Falco columbarius*) in central Utah - completed 1997.

Baker, Aaron J . Status and breeding biology, ecology, and behavior of the Orange-breasted Falcon (*Falco deiroleucus*) in Guatemala and Belize. - completed 1998.

Kremer-Goodell, Shelly R. Diet analysis of the Great-horned Owl (*Bubo virginianus*) in disturbed and undisturbed habitat types, - completed 1999.

Ellison, Ann E . Distribution and reproductive status on the Mountain Plover (*Charadrius montanus*) in the Uintah Basin. - completed 1999.

Lloyd, Jason E . Mountain Plover (*Charadrius montanus*) population and nest site selection in the Uintah Basin: a microhabitat analysis, - completed 2000.

Sarah A. Sonsthagen. August 2002, Year-round habitat, movement, and gene flow of Northern Goshawks breeding in Utah. - completed August 2002.

Hill, Rebecca Lyon, Three-toed woodpecker ecology in a managed Engelmann spruce forest of Utah, Completed - August 2002.

Mika, Markus. Prey base differences and reproductive output of breeding Flammulated Owls (*Otus flammeolus*) in northern Utah. completed June 2002.

Underwood, Jared. Winter movements and habitat use of Northern Goshawks (*Accipiter gentilis*) breeding in Utah. Completed December 2003.

Jones, Landon. Calcium dynamics affecting egg production, skeletal integrity, and egg coloration in Ring-necked Pheasants (*Phasianus colchicus*). Completed 2007.

Marvel, Keeli. A study of habitat variables associated with Northern Goshawk nest site activity on the three National Forests in southern Utah. Completed 2007.

Jorgenson, Jenna. Biotic and environmental variables of Northern Goshawk nesting on the Dixie national Forest, Utah. completed 2007.

Ph.D. Degrees:

Mosher, James A. Raptor temperature regulation and energetics - completed 1975.

Knight, Richard L. Aspects of auklet - Peregrine Falcon interaction in the Aleutian Islands - dropped out of program.

Whitmore, Robert A. Habitat partitioning in a community of passerine birds - completed 1975.

Mader, William J . Ecology of the Savanna Hawk in Venezuela - completed 1981.

Piatt, Stephen W. Prairie Falcons: aspects of population dynamics, individual vocal identification, marking and sexual maturity - completed 1981.

Benson, Patrick G. Large raptor electrocution and power pole utilization: a study in six western states - completed 1981.

Castrale, John S . Use of managed sagebrush grasslands by bird populations - completed 1981.

Mindell, David P. Migration of North American breeding raptors; Endogenous versus environmental control, biogeography and hazard to aircraft - completed 1985.

Williams, Richard N. Introduction, distribution, and foraging ecology of two introduced bulbuls (*Pycnonotus*) in Hawaii - completed 1985.

Whaley, Wayne H. Trends in geographic variation of Cooper's Hawk and Northern Goshawks: a multivariate analysis - completed 1988.

Boyce, Douglas A., Jr. A systematic study of the family falconidae: Protein electrophoretic analysis of genera, gene expression in the American Kestrel (*Falco sparverius*). and morphological analysis of the subgenus *Tinnunculus* (kestrels) - completed 1989.

Parrish, Jimmie R. The biogeochemistry of nearctic Peregrine Falcons - completed 1989.

Johansson, Carl. The Bird-Avert system; development of technology to eliminate bird kills from industrial toxic evaporation ponds - in progress.

Committees on which I had major input as a member or secured funding:

Mitchell, Ronald M. Nesting ecology of the Double-crested Cormorant on Utah Lake, M.S. 1974.

Woffinden, Neil D. Ecology of the Ferruginous Hawk (*Buteo regalis*) in central Utah: Population dynamics and nest site selection, Ph.D., 1975.

Joseph, Ronald A. Behavior and age class structure of wintering Bald Eagles (*Haliaeetus leucocephalus*) in western Utah, M.S., 1977.

Burgoyne, Paul C. Bird population changes and manipulation of a ponderosa pine forest on the Kaibab Plateau, Arizona, Ph.D., 1980.

Lee, Julie A. Comparative breeding behavior of the goshawk and the Cooper's Hawk, M.S., 1981.

Pearson, Craig B. The density, diversity and distribution of owls along the Wasatch Front - An experimental approach, M.S., 1981.

Zarnekee, Carolyn V. Circadian activity pattern of the Burrowing Owl (*Athene cunicularia*), M.S., 1982.

DeLong, Tod, R. Effects of ambient condition on nocturnal nest behavior in Long-eared Owls, M.S., 1982.

Ellis, Kevin L, Distribution and habitat selection of breeding male Sage Grouse in northeastern Utah, Ph.D., 1986.

Fischer, David L. Daily activity patterns and habitat use of coexisting Accipiter hawks in Utah, Ph.D. 1986.

Sabine, Neil B, Aspects of Bald Eagles wintering behavior in Rush Valley, Utah: a telemetry study, Ph.D., 1987.

LeClere, Monica G. Food niche relationships of sympatric raptors in western Utah, Ph.D., 1990.

Other Graduate Committees:

I have served as a committee member on an additional 23 graduate programs in the departments of Botany and Range Science and Geology and advised on a committee in the department of Geography. April 29, 1998.

* indicates I secured funding for the study.

Bunnell, Kevin. 2000. Sage Grouse at Strawberry Reservoir . . M.S., Advisor J., Flinders

James Jensen . 1972. Effects of gas on oocytes...M.S., Advisor F. Anderson.

Mitchell, Ronald M. 1974. Nesting ecology of cormorants M.S., Advisor H.H. Frost.

Joseph, Ronald A. 1977. Behavior of wintering Bald Eagles . . . M.S., Advisor J. R. Murphy.

King, Michael. 1979. Habitat use by deer. .M.S., Advisor H.D. Smith.

Larson, Jeff. 1979. Bergmann's and Allen's Rules...M.S., Advisor H.D. Smith.

Lisak, Francis. 1980. *Aleosaurus* in Utah. M.S., Advisor W. Miller.

* Burgoyne, Paul C. 1980. Bird population changes.... Ph.D. Advisor H.H. Frost

Cluff, Linda. 1980. Concentration of monoterpenoids .. M.S., Advisor J. Brotherson.

White, Susan. 1980. Interaction of pygmy rabbits and sagebrush. M.S., Advisor J. Brotherson.

Elliott, Charles. 1980. Ecology of Columbian ground squirrels... M.S., Advisor J. Flinders.

Green, Billy. 1981. Habitat selection in Sage Sparrows...M.S., Advisor H.D. Smith.

Pearson, Craig B. 1981. The density and diversity owls M.S., Advisor H.H. Frost

Zobell, Richard. 1982. Ligaments in ungulates... M.S., Advisor K. Van De Graaff.

Zarnekee, Carolyn V. 1982. Circadian pattern of owls.... M.S., Advisor H.H. Frost

DeLong, Tod, R. 1982. Effects of ambient condition.... M.S., Advisor J. R. Murphy.

Jacobsen, Erling. 1983. Strike in snakes . . . M.S., Advisor K. Van De Graaff.

Collins, Pat. 1983. Flower color and fleshy fruited plants...Ph.D. Advisor K. Harper

* Ellis, Kevin L. 1986. Habitat selection of Sage Grouse... M.S., Advisor J. R. Murphy.

Fischer, David L. 1986. Daily patterns of coexisting hawks.... Ph.D. Advisor J. R. Murphy.

Jacquart, Howard. 1986. Prescriptive transplanting of prairie dogs... M.S., Advisor J. Flinders.

Sabine, Neil B. 1987. Bald eagles wintering behavior.... M.S., J. R. Murphy.

Merrill Webb. 1987. Elevational changes in woody vegetation... MS. Advisor J. Brotherson.

Dan Walsh. 1989. Habitat and voice in Great-horned Owls..., Ph.D. Advisor J. Murphy.

LeClere, Monica G, 1990. Food niche relationships of raptors,.. Ph.D. Advisor H.D. Smith.

Slaugh, Bart. 1990. Improving efficiency of rearing birds.... Ph.D. Advisor J. Flinders.

Pennock, Dave. 1990. Hatching in House Wrens.... M.S., Advisor B. Maurer.

Banack, Sandra. 1990. Ethnobotany of ocean-going canoes in Fiji. M.S., Advisor P. Cox.

Barber, Harry. 1991. Strutting behavior of Sage Grouse., M.S., Advisor J , Flinders.

Smith, Tom. 1992. The bighorn Sheep of Bear Mountain. Ph.D. Advisor J. Flinders.

Haywood, Greg. 1992. Fractal analyses in birds.... M.S., Advisor B. Maurer.

Weller, Gene. 1992. Riparian communities of selected streams... M.S., Advisor J. Brotherson.

DeWitt, Christine. 1996. Science education... M.S., R. Tolman

Smith, David. 1996. Morphometric variation in *Allosaurus*. Ph.D. Advisor W. Miller.

White, Craig. 1997. Ecological aspects of grey fox. M.S., Advisor J. Flinders

Bybee, Paul. 1997, Histological bone structure... Jurassic dinosaurs Bone structure in dinosaurs. Ph.D. Advisor W. Miller.

Huntsman, Bret. 1998. Stoneflies of the Great Plains, M.S., Advisor R. Baumann.

Linder, Eric. 1999. Spatio-temporal variation of birds... Ph.D. Advisor B. Maurer

Undergraduate mentores: 2002-2004

Megan Stromberg, Ruth Hosford, Lisa Bardo, Gibrham Rodriguez, Erin Grigg, Katie Hutson, Laura McKnight Jeremy Hutson, Kristi Burr, Brynn Harrison.

CURRICULUM VITAE

Dr. Armand Toyn Whitehead
Professor Emeritus (Retired 1999)
Department of Physiology and Developmental Biology
Brigham Young University
Provo, Utah

Home Address:
410 N 850 E
Pleasant Grove, Utah 84062
801-361-2655

Born: 19 May 1936

Marital Status: Married

Education:

B.S. – Brigham Young University, Provo, Utah, 1965 (*cum laude*)

Ph.D. – University of California, Berkeley 1968
Thesis: Innervation of the Salivary Glands of the American Cockroach.

Experience:

United States Air Force: Electronic Countermeasures Technician and Instructor 1954-1962.

Grade: Staff Sergeant. Awarded Airman of the Month, December 1960, Airman of the Year, 1960.

U.S. Forest Service. Survey Technician. Uintah National Forest, Utah. 1962-1964.

Insect Curator, BYU, Dr. Donald Allred, 1965.

NIH Fellowships, 1965-1968, U.C. Berkeley, Department of Entomology.

Professional Development Leaves:

Department of Entomology, University of Illinois, Urbana. 1975-76

Department of Entomology, University of Alberta, Edmonton Canada 1988-89

Publications:

- Whitehead, A.T. 1971. The Innervation of the Salivary Gland in the American Cockroach: Light and Electron Microscopic Observations. *J. Morphol.* 135: 483-505.
- Whitehead, A.T. 1973. Innervation of the American Cockroach Salivary Gland: Neurophysiological Investigations. *J. Ins. Physiol.* 19: 1961-1970.
- Whitehead, A.T. "Respiration," in Syllabus for Introductory Entomology. Vernon J. Tipton (ed.) Brigham Young University Press, 1973. Includes audio cassette tape for above plus laboratory exercise on "Insect Flight."
- Whitehead, A.T. and J.R. Larsen. 1976a. Ultrastructure of the Contact Chemoreceptors of *Apis mellifera* L. (Hymenoptera: Apidae). *Int. J. Insect Morphol. and Embryol.* 5: 301-315.
- Whitehead, A.T. and J.R. Larsen. 1976b. Electrophysiological Responses of Galeal Contact Chemoreceptors of *Apis mellifera* to Selected Sugars and Electrolytes. *I. Insect Physiol.* 22: 1609- 1616.
- Whitehead, A. T. 1978. Electrophysiological Responses of Honeybee Labial Palp Contact Chemoreceptors to Sugars and Electrolytes. *Physiol. Entomol.* 3: 241-248.
- Mitchell, B.K., A. T. Whitehead and E. Backus. 1979. Ultrastructure of the Lateral and Medial Galeal Sensilla of the Larva of the Red Turnip Beetle, *Entomoscelis americana* Brown (Coleoptera: Chrysomelidae). *Int. J. Insect Morph. and Embryol.* 8: 289-295.
- Whitehead, A. T. 1981. Ultrastructure of Chemosensilla of the Mountain Pine Beetle, *Dendroctonus ponderosae* (Coleoptera: Scolytidae). *Int. J. Insect Morph. and Embryol.* 10: 19- 28.
- Whitehead, A.T. (1986) Electroantennogram Responses by Mountain Pine Beetles, *Dendroctonus ponderosae* Hopkins, exposed to Selected Semiochemicals. *J. Chem. Ecol.* 12: 1603-1621.
- Whitehead, A.T., Scott, D.T., Schmitz, R.F., & Mori, K. 1989. Electroantennograms by mountain pine beetles, *Dendroctonus ponderosae* Hopkins, exposed to selected chiral semiochemicals. *J. Chem. Ecol.* 15: 2089-2099.
- Mitchell, B.K., Smith, J.J.B., Albert, P.J., & Whitehead, A.T. 1990. Variance: a possible coding mechanism for gustatory sensilla on the labellum of the fleshfly *Sarcophaga bullata*. *J. exp. Biol.* 150: 19-36.
- Smith, J.J.B., Mitchell, B.K., Rolseth, B.M., & Whitehead, A.T. and Albert, P.J. 1990. SAPID Tools: Microcomputer programs for analysis of multi-unit nerve recordings. *Chemical Senses.* 15: (3) 253-270.

- Albert, P.J., Smith, J.J.B., Mitchell, B.K., & Whitehead, A.T. 1991. Differences in response patterns of labellar chemosensilla of the fleshfly *Sarcophaga bullata*. *Comp. Biochem. & Physiol.* Vol. 100A, No. 3, pp. 681-687.
- Gries, G., Borden, J.H., Gries, R., Lafontaine, J.P., Dixon, E.A., Wieser, H., Whitehead, A.T. 1992. 4-Methylene-6,6-dimethylbicyclo[3.1.1]hept-2-ene (Verbenene): New Aggregation Pheromone of the Scolytid Beetle *Dendroctonus rufipennis*. *Naturwissenschaften* 79, 367-368.

MICHAEL F. WHITING

CURRICULUM VITAE

Department of Biology
4142 Life Science Building
Brigham Young University
Provo, Utah 84602-5255

Personal Information:

Telephone: (801) 422-5651 (office)
E-mail Address: Michael_Whiting@byu.edu
FAX: (801) 422-0090

Education:

B.S. in Zoology with emphasis in Entomology, Cum Laude, Brigham Young University, Provo Utah. 1990
Ph.D. in Entomology, Cornell University, James K. Liebherr advisor. Dissertation title: *Phylogeny of the Holometabola based on Molecular and Morphological Evidence with Emphasis on the Placement of the Strepsiptera*. 1995.

Fellowships, Scholarships, Awards:

Karl G. Maeser Research Award, Brigham Young University	2008
College of Biology and Agriculture, College Professorship	2006
Phi Kappa Phi Distinguished Faculty Award, Brigham Young University	2005
Creative Achievement Award, College of Biology and Agriculture	2003
Young Investigator Award, Brigham Young University	2001-2004
National Science Foundation CAREER Award Winner	2000
NSF/Sloan Postdoctoral Fellowship, American Museum of Natural History	1994-1995
Kalbfleisch Postdoctoral Research Fellowship, American Museum of Natural History	
Ernst Mayr Award Winner (First Place student paper, Society of Systematic Biologists).	1993
Presidential Award (Second Place student paper, Entomological Society of America).	1993
Presidential Award (First Place student paper, Entomological Society of America).	1992
Liberty Hyde Bailey Graduate Fellowship, Cornell University	1990-1993
Sage Graduate Fellowship, Cornell University	1990
NSF Graduate Fellowship	1990-1992

Professional Experience:

Professor, Department of Biology, Brigham Young University	2006-present
Curator of Insects, M. L. Bean Museum, Brigham Young University	2006-present
Associate Professor, Department of Zoology, Brigham Young University	2003-2006
Associate Curator of Insects, Monte L. Bean Museum, Brigham Young University	2003-2006
Director, DNA Sequencing Facility, Brigham Young University	1997-present
Assistant Curator of Insects, Monte L. Bean Museum, Brigham Young University	1997-2002
Assistant Professor, Department of Zoology, Brigham Young University	1997-2002
Postdoctoral Fellow, Rob DeSalle, American Museum of Natural History	1995-1996
Research Assistant, Ward Wheeler, American Museum of Natural History	1990-1994
Research Intern, Chris Simon, University of Hawaii	1989
Research Assistant, Richard Baumann, Brigham Young University	1985-1989

Professional Services:

Program Director, Systematics and Biodiversity Sciences, National Science Foundation	2012-2013
Editorial Adviser, Systematic Entomology	2000-2007
Editorial Board, Molecular Phylogenetics and Evolution	2000-2006
Editorial Board, Invertebrate Systematics	2003-2009

Reviewer (Granting Agencies)

National Science Foundation
Australian Research Council

NSF Review Panel Service (Nov 1997; May 2002; May 2003)
NSF Site Review Team (June 2006)

Reviewer (Journals)

Cladistics
ESA Annals
Evolution
Molecular Phylogenetics and Evolution
Nature
New York Entomol. Soc.

Novitates
Proceedings of the Royal Society: Biological Sciences
Systematic Biology
Systematic Entomology
Zoologica Scripta

Grants Awarded:

S.G.: Investigating a cross-kingdom convergence: The phylogeny of stick insects and the evolution of masquerade crypsis (Insecta: Phasmatodea). Submitted to NSF Systematics. M. F. Whiting, S. Bradler, and J. Robertson. **Awarded at \$150,000** over 3 years (2016-2018)

The Phylogeny of Stick Insects and the Evolution of Masquerade Crypsis: A Team Mentored Experience. M. F. Whiting. Submitted to BYU ORCA MEG Program. **Funded at \$20,000** (2014).

Digitization PEN: Ground-dwelling Insects in the Brigham Young University Collection, Enhancement to SCAN. NSF. Submitted to NSF Emerging Frontiers: Digitization. **Awarded at \$167,000 over 3 years (2014-2016)**

Evolution of Scorpionflies (Insecta: Mecoptera): A Team Mentored Experience. M. F. Whiting. Submitted to BYU ORCA MEG Program. **Funded at \$20,000** (2013). NSF Collections Program. Awarded at ,

DEB Proposal: Phylogenomics, Revisionary Systematics, and Evolution of the visual systems in dragonflies and damselflies (Insecta: Odonata). S. Bybee, M. Clement, and M. F. Whiting. Submitted to NSF Division of Environmental Biology, Aug. 2012, but rerouted through IOS to avoid conflicts because of Whiting's role as Program Director in Systematic Biology. **Awarded at \$778,416 over 5 years (2013-2018).**

Dissertation Research: Phylogeny of Tettigoniidae (Orthoptera): Evolution of Katydid Defenses and Ears. M. F. Whiting and J. Mugleston (graduate student). **Awarded Jan 2, 2012 at \$14,998**

Molecular Phylogenetics of Basal Insect Groups: A Team Mentored Experience. M. F. Whiting. Submitted to BYU ORCA MEG Program. **Funded at \$20,000** (2012).

Establishing Conservation Baselines and Priorities for Land above the LDS Temple in Laie, Hawaii: In Search of the Giant Hawaiian Dragonfly. Submitted to Roger and Victoria Sant Educational Endowment, College of Biology and Agriculture, BYU. **Awarded at \$9,243** over 1 year (2012).

A Phylogenomic Approach to Questions in Insect Phylogeny and Evolution: A Team Mentored Research Experience. BYU ORCA Environments for Mentoring Grant, Awarded February 2010 at **20,000** over 1 year.

AToL: COLLABORATIVE RESEARCH: Assembling the Beetle Tree of Life. NSF REU Supplement. (2009). Awarded at **\$12,000** over 1 year.

Applying 454 Sequencing Technology to the Phylogenomics of Beetles: A Team Mentored Research Experience. BYU ORCA Environments for Mentoring Grant, Awarded February 2009 at **20,000** over 1 year.

Phylogenetic Systematics of Orthoptera (Insecta): Evolution of Male Genitalia and Study of Nuclear Mitochondrial Pseudogenes. With H. Song. NSF Systematics Panel, Awarded May 2008 at **\$400,000** over 3 years.

MRI Aquisition of Genome Sequencer FLX system. With J. Udall, J. Lin, N. Hanegan, and A. Harker. NSF Major Research Instrumentation Program. Awarded May (2008) at **\$630,000** over 3 years.

AToL: COLLABORATIVE RESEARCH: Assembling the Beetle Tree of Life. NSF REU Supplement. (2008). Awarded at **\$12,000** over 1 year.

AToL: COLLABORATIVE RESEARCH: Assembling the Beetle Tree of Life. NSF ROA Supplement. (2008). Awarded at **\$24,960** over 1 year.

Mitochondrial Genomics and the Beetle Tree of Life: A Team Mentored Research Experience. BYU ORCA Environments for Mentoring Grant. Awarded January 2008 at **\$20,000** over 1 year.

AToL: COLLABORATIVE RESEARCH: Assembling the Beetle Tree of Life. NSF REU Supplement. (2007). Awarded at **\$12,000** over 1 year.

Beetle Tree of Life. BYU ORCA Environments for Mentoring Grant. Awarded January 2007 at **\$20,000** over 1 year.

Proposal To Fund Undergraduate Research in Papua New Guinea. Submitted to Roger and Victoria Sant Educational Endowment, College of Biology and Agriculture, BYU. Awarded at **\$10,000** over 1 year (2007)

Discovering a New Insect Order in Papua New Guinea: SGER Proposal. Submitted to NSF DEB. Awarded at **\$26,145** over 1 year (2007-2008)

A Monograph of the Bark Beetles of South America. Submitted to USDA. With Co-PI S. Wood. Awarded at **\$62,000** over 2 years. (2006-2008)

Phylogeny of Insects: Collaborative Approach (renewal). BYU ORCA Environments for Mentoring Grant. Awarded January 2006 at **\$20,000** over 1 year.

Request for funding to support undergraduate fieldwork in Southern Appalachia. Submitted to Department of Integrative Biology, BYU. 2006. Funded at **\$2,500** over 1 year.

BTOL: Assembling the Beetle Tree of Life. With Co-PI's B. Farrell, D. Maddison, and A. Slipinski. Submitted to NSF Assembling the Tree of Life, March 2005. Funded at **\$ 700,000** over 5 years.

Collaborative Research: Phylogeny, behavior, and silk evolution of webspinners (Embioptera), a little known insect order. Jan, 2005. With Co-PI's K. B. Miller. Submitted to NSF Systematics. Awarded May 2004 at **\$260,000** over 3 years.

MRI: Acquisition of DNA-manipulation robotics for increased throughput and data integrity in biological research, teaching, and student research training. Jan, 2005. With Co-PI's L. Johnson, G. Burton, L. Bridgewater, and K. Crandall. Awarded June 2005 at **337,502** over 2 years.

Testing the utility of mitochondrial genome rearrangements as phylogenetic markers in Ischnocera (Insecta: Phthiraptera). With Co-PI's S. L. Cameron and K. P. Johnson. Submitted to NSF Systematics. Awarded at **\$300,000** over 3 years (2005-2008).

Phylogeny of Insects: Collaborative Approach (renewal). ORCA Environments for Mentoring Grant. Awarded January 2005 at **\$15,000** over 1 year.

REU Support for undergraduate students involved with research on insect phylogenomics. Submitted to NSF Research Experience for Undergraduates (Supplement to Current NSF Grants). (2004) Awarded at **\$12,000** over 1 year.

Structural reorganization of the hymenopteran mitochondrial genome. 2004. With Co-PI's M. Dowton, A. Austin, and M. Sharkey. Submitted to the Australian Research Council. Awarded at **\$268,000** over 3 years (2005-2008)

Proposal To Fund Undergraduate Research in Peru. Submitted to Roger and Victoria Sant Educational Endowment, College of Biology and Agriculture, BYU. Awarded at **\$10,000** over 1 year (2005)

REU Support for undergraduate students involved with research on insect phylogenomics. Submitted to NSF Research Experience for Undergraduates (Supplement to Current NSF Grants). Jan, 2003. Awarded at **\$20,000** over 1 year.

REU Support for undergraduate students involved with research on phylogeny of fleas. January, 2003. NSF Research Experience for Undergraduates (Supplement to Current NSF Grants). Awarded at **\$12,000** over 1 year (2004).

Phylogeny of Insects: Collaborative Approach. ORCA Environments for Mentoring Grant. Awarded January 2004 at **\$20,000** over 1 year.

PEET: Building Taxonomic Expertise in Cucujoidea: Monographic and Phylogenetic Studies of the Cerylonid Beetles. Submitted to NSF Division of Environmental Biology. With Co-PI's J. M. McHugh and K. Miller. Awarded at **\$800,000** over 5 years (2003-2007).

Request for Funding for field Work in India. BYU Kennedy Center. Funded at **\$1,000** over 1 year. (2003).

Research Experience for Teachers (RET) Request for K12 teachers involved with research on insect phylogenomics. Submitted to NSF RET program (Supplement to Current NSF Grants). (2003) Awarded at **\$20,000** over 1 year.

Supplemental Request for International Travel for CAREER: Familial Phylogeny of the Siphonaptera of the World. Submitted to NSF Systematics Panel, Division of Environmental Biology. Awarded at **\$15,340** over 1 year (2003).

Proposal To Fund Undergraduate Research in Borneo, Malaysia. Submitted to Roger and Victoria Sant Educational Endowment, College of Biology and Agriculture, BYU. Awarded at **\$10,000** over 1 year (2003)

REU Support for undergraduate students involved with research on insect phylogenomics. Submitted to NSF Research Experience for Undergraduates (Supplement to Current NSF Grants). Awarded at **\$12,000** over 1 year (2002).

Proposal To Fund Undergraduate Research in Namibia, South Africa. Submitted to Roger and Victoria Sant Educational Endowment, College of Biology and Agriculture, BYU. Awarded at **\$10,000** over 1 year. (2002)

Proposal to Fund Undergraduate Research in Australia. Submitted to Department of Integrative Biology. Awarded at **\$3,000** over 1 year (2002).

Dissertation Research: Phylogeny of Ephemeroptera -- Evolution of the subimago and nymphal gills with implications on the origin of flight. Submitted to NSF Doctoral Dissertation Improvement Program for T. H.

Ogden. Awarded at **\$10,000** over 3 years. (2002-2004)
Dissertation Research: A Molecular Phylogeny of Polyneoptera. Submitted to NSF Doctoral Dissertation Improvement Program for M. D. Terry. Awarded at **\$10,000** over 3 years (2002-2004).
BIOCOMPLEXITY: Hexapod phylogenomics – Bringing phylogenetic supercomputing to the masses. NSF Division of Environmental Biology. With Co-PIs M. J. Clement, K. A. Crandall, Q. Snell, and D. Whiting. Awarded at **\$1,340,000** over 5 years (2002-2006).
Request to Upgrade Sequencing Instrumentation, BYU DNA Sequencing Center. Submitted to the Office of Research and Creative Activities, BYU. Funded at **\$430,000** (2002).
Origins of parasitism in the Psocodea. Submitted to Australian Research Council. With Co-PIs S. Cameron, S. Barker, and K. Johnson. Funded at **\$225,000** (Australian\$) over 3 years (2002-2004).
Proposal To Fund Undergraduate Research in Papua New Guinea. Submitted to Roger and Victoria Sant Educational Endowment, College of Biology and Agriculture, BYU. Awarded at **\$10,000** over 1 year. (2001)
Phylogeny of Insects: Request for Renewal. Submitted to BYU ORCA Environments for Mentoring. Awarded at **\$20,000** over 1 year. (2001)
REU Support for undergraduate students involved with research on phylogeny of Hawaiian Carabid Beetles and fleas. Submitted to NSF Research Experience for Undergraduates (Supplement to Current NSF Grants). Awarded at **\$20,000** over 1 year.
Phylogeny of Insects: A Comprehensive Approach. Submitted to BYU ORCA Environments for Mentoring. Awarded at **\$20,000** over 1 year. (2001)
REU Support for undergraduate students involved with research on phylogeny of Hawaiian Carabid Beetles and fleas. Submitted to NSF Research Experience for Undergraduates (Supplement to Current NSF Grants). Awarded at **\$20,000** over 1 year. (2000)
Phylogenetic Analysis: A Collaborative Approach. Submitted to BYU ORCA and University Graduate Studies. With Co-PIs Q. Snell, M. Clement, K. A. Crandall, D. Whiting, and G. Fellingham. Awarded at **\$150,000** over 3 years (2000-2002).
NSF CAREER: Familial Phylogeny of the Siphonaptera of the World. Submitted to NSF CAREER Program, Division of Environmental Biology. Awarded at **\$500,000** over 5 years (2000-2004).
REU Support for research on Mecopteran Phylogeny and Hawaiian Carabid Beetle Phylogeny. Submitted to NSF Research Experience for Undergraduates (Supplement to Current NSF Grants). Awarded at **\$10,000** over 1 year. (1999)
Molecular Phylogenetics and Revisionary Systematics of the Hawaiian Carabid Beetles (Coleoptera: Carabidae). With J. K. Liebherr. Submitted to NSF Systematics. Awarded at **\$200,000** over 3 years (1998-2001).
Phylogeny of the Mecoptera of the World based on Molecular and Morphological Data: Evidence for Two New Holometabolous Insect Orders. With George Byers. Submitted to NSF Systematics. Awarded at **\$100,000** over 3 years (1997-2000).
Dissertation Research: Phylogeny of the Holometabolous insect orders based on molecular data. NSF Dissertation Improvement Grant. Awarded at **\$15,000** over 3 years (1991-1993).
Request for preliminary funding for insect molecular systematics. Department of Research, Cornell University. Awarded at **\$4,000** over 1 year. (1991)

Invited Lectures:

National Science Foundation, Division of Environmental Biology, Guest Speaker, June 13, 2012
 Utah Valley University, Darwin Celebration Lecture Series, February 13, 2009
 Brigham Young University, Darwin Celebration Lecture Series, February 12, 2009
 Idaho State University, Darwin Day Lecture Series, February 11, 2009
 Herrett Forum, College of Southern Idaho, Twin Falls, ID, October 15, 2008.
 Entomological Society of America Annual Meetings; Indianapolis, IN, Dec. 2006.
 National Science Teachers Association, December 8, 2006.
 Freshwater Invertebrate DNA-Signature Workshop, Utah State University: 29-30 November 2006
 University of Utah, Frontiers of Science Series, January 18, 2006.
 Brigham Young University, Phi Kappa Phi Distinguished Lecture, November 17, 2005.
 Brigham Young University, Summerhays' Lectureship, September 24, 2005.
 Brigham Young University Idaho Seminar Speaker, September 8, 2005.
 Brigham Young University Forum Speaker, May 24, 2005.
 University of Missouri at Columbia, Seminar Speaker, Columbia, Missouri, May 2005.
 Field Museum of Natural History, Chicago, IL, Seminar Speaker, March 2005.
 New York State Museum, Albany, NY. Invited Speaker. Feb. 2004.
 Texas A&M University, Department of Entomology, Seminar Speaker; College Station, TX, Nov 2002.

Assembling the Tree of Life, American Museum of Natural History; New York, NY, June 2002.
 Entomological Society of America Annual Meetings; San Diego, California, Dec. 2001.
 Bay Area Systematics Group; Davis California, Nov. 2001.
 University of California at Davis Seminar Speaker; Davis, California, Nov. 2001.
 University of California at Riverside Seminar Speaker; Riverside, California, Nov. 2001.
 New Directions in Cluster Supercomputing; American Museum of Natural History, June 2001.
 XXI International Congress of Entomology; Iguassu Falls, Brazil, Aug. 2000.
 Ohio State University Seminar Speaker; Columbus, Ohio, Feb. 1999.
 University of Utah Seminar Speaker; Salt Lake City, Utah, Dec. 1998.
 Conference of Italian Zoologists; Rimini Italy, Sep. 1997.
 University of Georgia Seminar Speaker; Athens, Georgia, Aug. 1996.

Publications (Graduate students in red; undergraduates in blue)

- (143) Naegle, M. A., J. D. Mugleston, S. M. Bybee, and M. F. Whiting. 2016. Reassessing the phylogenetic position of the epizoic earwigs (Insecta: Dermaptera) *Molecular Phylogenetics and Evolution* 100: 382-390.
- (142) Mugleston, J. D., M. Naegle, H. Song, S. M. Bybee, S. Ingley, A. Suvorov, M. F. Whiting. 2016 Reinventing the leaf: Multiple origins of leaf-like wings in katydids (Orthoptera: Tettigoniidae). *Invertebrate Systematics* (accepted).
- (141) Dittmar, K. Q., Zhu, M. W. Hastriter, and M. F. Whiting. 2015. On the probability of Dinosaur fleas. *BMC Evolutionary Biology* (accepted).
- (140) Manwaring, K. F., M. F. Whiting, E. Wilcox, and S. M. Bybee. 2015. A study of common scorpionfly (Mecoptera: Panorpidae) visual systems reveals the expression of a single opsin. *Organismal Diversity and Evolution*. DOI: 10.1007/s13127-015-0241-7
- (139) Zhu, Q., M. W. Hastriter, M. F. Whiting, and K. Dittmar. 2015. Fleas (Siphonaptera) are Cretaceous, and Evolved with Theria. *Molecular Phylogenetics and Evolution* 90: 129-139.
- (138) Song, H., C. Amedegnato, M. M. Cigliano, L. Desutter-Grandcolas, S. W. Heads, Y. Huang, D. Otte, and M. F. Whiting. 2015. 300 million years of diversification: Elucidating the patterns of orthopteran evolution based on comprehensive taxon and gene sampling. *Cladistics* 31:621-651.
- (137) Dittmar, K., Q. Zhu, M.W. Hastriter, and M.F. Whiting. 2015. Evolutionary history of Siphonaptera: fossils, origins, vectors, Chapter 12, pp. 230-245. In: S. Morand, B.R. Krasnov, and D.T.J. Littlewood (Eds.), *Parasite diversity and diversification. Evolutionary ecology meets phylogenetics*. 488 pp.
- (136) McElrath, T. C., J. A. Robertson, M. C. Thomas, J. Osborn, K. B. Miller, J. V. McHugh, and M. F. Whiting. 2015. A molecular phylogenetic study of Cucujidae s.l. (Coleoptera: Cucujoidea). *Systematic Entomology* 40: 705-718.
- (135) McKenna, D. D., A. L. Wild, K. Kanda, C. L. Bellamy, R. G. Beutel, M. S. Caterino, C. W. Farnum, D. C. Hawks, M. A. Ivie, M. Jameson, R. A. Leschen, A. E. Marvaldi, J. V. McHugh, A. F. Mewtpom, J. A. Robertson, M. K. Thayer, M. F. Whiting, J. F. Lawrence, A. Slipinski, D. R. Maddison, and B. D. Farrell. 2015. Beetles Survived the End Permian Mass Extinction to Diversify During the Cretaceous Terrestrial Revolution. *Systematic Entomology* 40: 835-880.
- (134) Robertson, J. A., A. Ślipiński, M. Moulton, F. W. Shockley, A. Giorgi, N. P. Lord, D. D. McKenna, W. Tomaszewska, J. Forrester, K. B. Miller, M. F. Whiting and J. V. McHugh. 2015. Phylogeny and classification of Cucujoidea and the recognition of a new superfamily Coccinelloidea (Coleoptera: Cucujiformia). *Systematic Entomology* 40: 745-778.
- (133) Song, H., M. Moulton, and M. F. Whiting. 2014. Rampant nuclear insertion of mtDNA across diverse lineages within Orthoptera (Insecta). *PLoS ONE* 9(10): e110508. doi:10.1371/journal.pone.0110508
- (132) Cline, A. R., T. Smith, K. Miller, M. Moulton, M. F. Whiting, and P. Audisio. 2014. Molecular phylogeny of Nitidulidae: assessment of subfamilial and tribal classification, and formalization of the family Cybocephalidae (Coleoptera: Cucujoidea). *Systematic Entomology* 39:758-772
- (131) Chen, H., G. Lin, J. Ma, J. Su, Z. Wang, M. F. Whiting, T. Zhang, and F. Zhao. 2014. Genomic resources notes accepted 1 February 2014-31 March 2014. *Molecular Ecology Resources* 14: 882.
- (130) Bradler, S., J. A. Robertson, and M. F. Whiting. 2014. A molecular phylogeny of Phasmatodea with emphasis on Necrosiinae, the most species-rich subfamily of stick insects. *Systematic Entomology* 39: 205-222.
- (129) Legendre, F., C. D'Haese, P. Deleporte, R. Pellens, M. F. Whiting, K. Schliep, and P. Grandcolas. 2013. The evolution of social behaviour in Blaberid cockroaches with diverse habitats and social systems: phylogenetic analysis of behavioural sequences. *Biol. J. of the Linn. Soc.* published online: 22 NOV 2013 DOI: 10.1111/bij.12199.
- (128) Mugleston, J. D., H. Song, and M. F. Whiting. 2013. A century of paraphyly: A molecular phylogeny of katydids

- (Orthoptera: Tettigoniidae) supports multiple origins of leaf-like wings. *Molecular Phylogenetics and Evolution* 69: 1120-1134.
- (127) Song, H., **M. J. Moulton**, **K. D. Hiatt**, M. F. Whiting. 2013. Uncovering historical signature of mitochondrial DNA hidden in the nuclear genome: The origin of the desert locust revisited. *Cladistics* 29: 643-662.
- (126) **Leavitt, J. R.**, **K. D. Hiatt**, M. F. Whiting, and H. Song. 2013. Searching for the optimal data partition strategy in mitochondrial phylogenomics: A phylogeny of Acridoidea (Insecta: Orthoptera: Caelifera) as a case study. *Molecular Phylogenetics and Evolution*. 67: 494-508.
- (125) Legendre, F., M. F. Whiting, and P. Grandcolas. 2013. Phylogenetic analyses of termite post-embryonic sequences illuminate caste and developmental pathway evolution. *Evolution and Development* 15: 146-157.
- (124) **Robertson, J. A.**, S. A. Slipinski, **K. Hiatt**, K. B. Miller, M. F. Whiting, and J. V. McHugh. 2013. Molecules, morphology, and minute hooded beetles: a phylogenetic study with implications for the evolution and classification of Corylophidae (Coleoptera: Cucujoidea). *Systematic Entomology* 38: 209-232.
- (123) **Buckman, R. S.**, L. A. Mound, and M. F. Whiting. 2013. Phylogeny of thrips (Insecta: Thysanoptera) based on five molecular loci. *Systematic Entomology* 38:123-133.
- (122) Nelson, L. A., C. L. Lambkin, P. Batterham, J. F. Wallman, M. Dowton, M. F. Whiting, D. K. Yeates, and S. L. Cameron. 2012. Beyond barcoding: A mitochondrial genomics approach to molecular phylogenetics and diagnostics of blowflies (Diptera: Calliphoridae). *Gene*. 511: 131-142.
- (121) **Ingley, S. J.**, S. M. Bybee, K. J. Tennesen, M. F. Whiting, and M. A. Branham. 2012 Life on the fly: Evolution of Helicopter Damselflies (Odonata: Pseudostigmatidae). *Zoologica Scripta*. 41: 637-650.
- (120) Bybee, S.M., **K.K. Johnson***, E.J. Gering, M.F. Whiting, K.A. Crandall. 2012. All the better to see you with: A review of odonate color vision and transcriptomic insight into the odonate eye. *Organisms Diversity and Evolution*. 12:241-250.
- (119) **Sundberg, K.**, M. Clement, Q. Snell, D. Ventura, M. F. Whiting, and K. Crandall. 2012. Phylogenetic search through partial tree mixing. *BMC Bioinformatics* 13: S8
- (118) Miller, K. B., C. Hayashi, M. F. Whiting, **G. J. Svenson**, and J. S. Edgerly. 2012. The phylogeny and classification of the Embioptera (Insecta). *Systematic Entomology* 37:550-570.
- (117) Terry, M. D. and M. F. Whiting. 2012. *Zorotypus novobritannicus*, the first species of the order Zoraptera (Zorotypidae) from the Australasian Ecozone. *Zootaxa* 3260:52-61.
- (116) Whiting, M. F. 2011. Evolution and the gospel: Seeking grandeur in this view of life. *Converging Paths to Truth: The Summerhays lectures on science and religion*. M. D. Rhodes and J. W. Moody, eds.
- (115) Cameron, S. L., K. Yoshizawa, A. Mizukoshi, M. F. Whiting, and K. P. Johnson. 2011. Mitochondrial genome deletions and minicircles are common in lice (Insecta: Phthiraptera). *BMC Genomics* 12:394-409
- (114) Gontijo, A. M., V. Miguela, M. F. Whiting, R. C. Woodruff, and M. Dominguez. 2011. Intron retention in the *Drosophila melanogaster* Rieske iron sulphur protein gene generated a new protein. *Nature Communications* 2:323 (doi:10.1038/ncomms1328).
- (113) Beutel, R. G., F. Friedrich, T. Hörschemeyer, H. Pohl, F. Hünefeld, F. Beckmann, R. Meier, B. Misof, M. F. Whiting, and L. B. Vilhelmsen, 2011. Morphological and molecular evidence converge upon a robust phylogeny for the megadiverse Holometabola. *Cladistics* 27:341-355.
- (112) Lord, N. P., C. S. Hartley, K. B. Miller, J. F. Lawrence, J. V. McHugh, and M. F. Whiting. 2010. Phylogenetic analysis of the minute brown scavenger beetles (Coleoptera: Latridiidae), and recognition of a new beetle family, Akalyptoischionidae, fam. n. (Coleoptera: Cucujoidea). *Systematic Entomology*. 35: 753-763.
- (111) Legendre, F., T. Robillard, H. Song, M. F. Whiting, and L. Desutter-Grandcolas. (2010) One hundred years of instability in ensiferan relationships. *Systematic Entomology* 35:475-488.
- (110) Bitam, I., K. Dittmar, P. Parola, M. F. Whiting, and D. Raoult. (2010). Fleas and flea-borne diseases. *International Journal of Infectious Diseases*. 14: e667-e676.
- (109) M. E. Pfrender, C. P. Hawkins, M. Bagley, G. Courtney, B. Creutzburg, J. H. Epler, S. Fend, L. C. Ferrington, Jr, P. L. Hartzell, S. Jackson, P. Larsen, A. Lévesque, J. C. Morse, M. Petersen, A. Radwell, D. Ruiter, D. Schindel, and M. F. Whiting. (2010). Genetic Approaches to Biodiversity Assessment In Freshwater Ecosystems. *Quarterly Review of Biology* 85: 319-340
- (108) **Sheffield, N. C.**, **K. D. Hiatt**, M. C. Valentine, H. Song, and M. F. Whiting. (2010). Mitochondrial genomics in Orthoptera using MOSAS. *Mitochondrial DNA* 21:87-104.
- (107) Song, H., **N. C. Sheffield**, S. L. Cameron, K. B. Miller, M. F. Whiting. (2010). When phylogenetic assumptions are violated: base compositional heterogeneity and among-site rate heterogeneity in beetle mitochondrial phylogenomics. *Systematic Entomology* 35:429-448.
- (106) **Moulton, M. J.**, H. Song, and M. F. Whiting. (2010). Assessing the effects of primer specificity on eliminating numt coamplification in DNA barcoding: A case study from Orthoptera (Arthropoda: Insecta) *Molecular Ecology Resources* 10: 615-627.
- (105) Gullipalli, D., A. Arif, P. Aparoy, **G. J. Svenson**, M. F. Whiting, P. Reddanna, and A. Dutta-Gupta. (2010)

Identification of a Developmentally and Hormonally Regulated Delta Class Insect Glutathione S-transferase. *Comparative Biochemistry and Physiology B-Biochemistry & Molecular Biology*. 156: 33-39.

- (104) Houston, D. D., T. H. Ogden, M. F. Whiting, and D. K. Shiozawa. (2010). Polyphyly of the Pikeminnows (Teleostei: Cyprinidae) Inferred Using Mitochondrial DNA Sequences. *Transaction of the American Fisheries Society* 139: 303-315.
- (103) Jensen, D., G. Svenson, H. Song, and M. F. Whiting. (2009). The phylogeny and evolution of male genitalia within the praying mantis genus *Tenodera* (Mantodea: Mantidae). *Invertebrate Systematics* 23:409-421.
- (102) Cameron, S. L., J. Sullivan, H. Song, K. B. Miller, and M. F. Whiting. (2009). A mitochondrial genome phylogeny of the Neuropterida (lace-wings, alderflies and snakeflies) and their relationship to the other holometabolous insect orders. *Zoologica Scripta* 38:575-590.
- (101) Miller, K. B., J. Bergsten, and M. F. Whiting. (2009). Phylogeny and classification of the tribe Hydatichini Sharp (Coleoptera: Dytiscidae): partition choice for bayesian analysis with multiple nuclear and mitochondrial protein-coding genes. *Zoologica Scripta* 38:591-615
- (100) Hastriter, M.W., S.E. Bush, K. Dittmar, S.S. Hla Bu and M.F. Whiting. (2009) *Nycteridopsylla quadrispina* Lu and Wu, a junior synonym of *Nycteridopsylla iae* Beaucournu and Kock (Siphonaptera: Ischnopsyllidae) as determined by morphological and DNA analyses. *Proceedings of the Entomological Society of Washington* 111: 598-602.
- (99) Giorgi, J. A., J. V. McHugh, J. A. Forrester, N. J. Vandenberg, S. A. Slipiński, K. B. Miller, L. R. Shapiro, and M. F. Whiting. (2009) The evolution of food preferences in Coccinellidae. *Biocontrol* 51: 215-231.
- (98) Ogden, T.H., J. L. Gattolliat, M. Sartori, A. Staniczek, T. Soldan, and M. F. Whiting. (2009). Towards a new paradigm in mayfly phylogeny (Ephemeroptera): combined analysis of morphological and molecular data. *Systematic Entomology* 34:616-634.
- (97) Sheffield, N. C., H. Song, S. L. Cameron, and M. F. Whiting. (2009). Nonstationary Evolution and Compositional Heterogeneity in Beetle Mitochondrial Phylogenomics. *Systematic Biology* 58:381-394.
- (96) Svenson, G. and M. F. Whiting. (2009). Tracing the Origins of the Praying Mantises (Dictyoptera: Mantodea): the emergence of modern Gondwanan mantises and their ecomorphic convergences. *Cladistics* 25: 468-514.
- (95) Whiting, M. F. (2009). Strepsiptera. *Encyclopedia of Insects, Volume II*. V. H. Resh and R. Carde eds. Academic Press pp. 971-972.
- (94) Hastriter, M. W. and M. F. Whiting. (2009). Siphonaptera (fleas). *Encyclopedia of Insects, Volume II*. V. H. Resh and R. Carde eds. Academic Press pp. 924-928.
- (93) Dowton, M., S. L. Cameron, J. I. Dowavic, A. D. Austin, and M. F. Whiting (2009) Analysis of 67 rearrangements suggests that mitochondrial gene position is selectively neutral. *Molecular Biology and Evolution* 26:1607-1617.
- (92) Dittmar, K., C. W. Dick, B. D. Patterson, M. F. Whiting and M. Gruwell. (2009). Pupal deposition and ecology of the winged ectoparasitic bat fly *Trichobius galei* (Diptera: Streblidae) in a natural cave habitat. *J. of Parasitology* 95:308-314.
- (91) Dowton, M., S. L. Cameron, A. D. Austin, and M. F. Whiting (2009) Phylogenetic approaches for the analysis of mitochondrial genome sequence data in the Hymenoptera - a lineage with both rapidly and slowly evolving mitochondrial genomes. *Molecular Phylogenetics and Evolution* 52: 512-519.
- (90) Ogden, T. H., J. T. Osborne, L. M. Jacobus, and M. F. Whiting. (2009). Combined molecular and morphological phylogeny of Ephemereillinae (Ephemereillidae: Ephemeroptera). *Zootaxa* 1991: 28-42.
- (89) Sheffield, N., H. Song, S. L. Cameron, and M. F. Whiting. (2008) A comparative analysis of mitochondrial genomes in Coleoptera (Arthropoda: Insecta) and genome descriptions of six new beetles. *Molecular Biology and Evolution* 25: 2499-2509.
- (88) Weller, S. J., M. DaCosta, R. Simmons, K. Dittmar, and M.F. Whiting (2008) Evolution and Taxonomic Confusion in Arctiidae. *Tiger Moths and Woolly Bears: Behavior, Ecology, and Evolution of the Arctiidae*. Oxford University Press.
- (87) Cameron, S. L., M. Dowton, L. R. Castro, K. Ruberu, M. F. Whiting, A. Austin, K. Diement, and J. Stevens. (2008). Mitochondrial genome organization and phylogeny of two vespidae wasps. *Genome* 51: 800-808.
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- (6) Whiting, M. F. and W. C. Wheeler (1994) Insect homeotic transformation. *Nature*, 368: 696.
- (5) Whiting, M. F. (1994) Cladistic analysis of the alderflies North of Mexico (Megaloptera: Sialidae). *Systematic Entomology*, 19: 77-91.
- (4) Meier, R. and M. F. Whiting (1992) Hennig86 and PAUP are reliable: A reply to Lorenzen and Sieg. *Z. zool. Syst. Evolut.-forsch.* 30: 239-243.
- (3) Whiting, M. F. (1991) A new species of *Sialis* from Southern California (Megaloptera: Sialidae). *Great Basin Naturalist*, 51: 411-413.
- (2) Whiting, M. F. (1991) Scanning electron microscopic study of the male genitalia of the North American alderfly genus *Sialis* (Megaloptera: Sialidae). *Great Basin Naturalist*, 51: 404-410.
- (1) Whiting, M. F. (1991). A distributional study of *Sialis* (Megaloptera: Sialidae) in North America. *Entomological News*, 102: 50-57.

CURRICULUM VITAE

WILLIAM W. WINDER, PhD

PERSONAL INFORMATION:

- A. Birthdate: September 12, 1942, Vernal, Utah
- B. Marital Status: Married to Linda Pastor
- C. Education: Brigham Young University, B.S., Zoology, 1966.
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PROFESSIONAL EXPERIENCE:

- A. Physiology teacher, laboratory coordinator, laboratory instructor, Zoology Department, Brigham Young University, 1966-1971.
- B. NIH post-doctoral research fellow in exercise physiology, Department of Preventive Medicine, Washington University School of Medicine, St. Louis, MO. Sponsor: Dr. John O. Holloszy, 1971-1974.
- C. Assistant Professor of Preventive Medicine, Washington University School of Medicine, St. Louis, MO., 1973-1979.
- D. Associate Professor of Physiology, Division of Biochemistry, Physiology, and Pharmacology, The University of South Dakota School of Medicine, Vermillion, S.D., 1979-1982.
- E. Associate Professor of Zoology, Department of Zoology, Brigham Young University, Provo, UT., 1982-1986.
- F. Professor of Zoology, Department of Zoology, Brigham Young University, Provo, UT., 1986-2002.
- G. Professor of Physiology and Developmental Biology, Brigham Young University, Provo, UT, 2002-2012.

RESEARCH ACTIVITIES

- A. Research Support:
 - 1. Research Grant from NIH, 1978-81, Control of Liver Glycogenolysis during Exercise, \$73,371.
 - 2. Research Career Development Award from NIH, 1979-1983, Effect of Exercise on Endocrine Function, \$143,235.

3. Research Grant from NIH, 1981-1985, Control of Liver Metabolism during Exercise, \$142,810.
4. Biomedical Research Support Grant from NIH (Dr. R. Robbins, Principal Investigator), 1982-1985, \$7,838.
5. Professional Development Funds, College of Biology and Agriculture, BYU, 1983-88, 1997, \$12,134.
6. Research Grant from NIH, 1985-1989, Control of Liver Glycogenolysis during Exercise, \$224,337.
7. Research grant from NIH, 1988-1994, Physiology of Muscle Lactate Production during Exercise, \$234,040.
8. Biomedical Research Support Grant from NIH (W. Winder, Principal Investigator), 1989, \$11,057 (Distributed to 4 researchers who held NIH grants).
9. Small Instrument Grant from NIH, 1992, \$6,892.
10. Research Grant from NIH, 1992-1997, Physiology of malonyl-CoA in muscle during exercise, \$390,912 direct costs recommended for entire project period.
11. Research Grant from NIH, 1997-2002, Physiology of malonyl-CoA in muscle during exercise, \$518,942 direct costs recommended for entire project period.
12. Research Grant from NIH, 2002-2007, Physiology of malonyl-CoA in muscle during exercise, \$1,063,666 direct costs recommended for entire project period.
13. Undergraduate Mentoring Grants from College and University, 2003, 2004 (\$37,000)
14. Research Grant from NIH, 2006-2012, Roles of LKB1 in Skeletal Muscle, \$1,068,100 direct costs.

B. Publications

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2. Winder, W.W. 1971. Effect of exercise on tissue concentrations of thyroid hormones and on thyroxine degradation rate in the rat. PhD Dissertation, Brigham Young University.
3. Winder, W.W. and R.W. Heninger. 1973. Effect of exercise on the degradation of thyroxine in the rat. *Am. J. Physiol.* 224: 572-575.
4. Winder, W.W., K.M. Baldwin, and J.O. Holloszy. 1973. Exercise induced adaptive increase in rate of oxidation of β -hydroxybutyrate by skeletal muscle. *Proc. Soc. Exp. Biol. Med.* 143: 753-755.
5. Baldwin, K.M., W.W. Winder, R.L. Terjung, and J.O. Holloszy. 1973. Glycolytic enzymes in different types of skeletal muscle: adaptation to exercise. *Am. J. Physiol.* 225: 962-966.
6. Baldwin, K.M. J.S. Reitman, R.L. Terjung, W.W. Winder, and J.O. Holloszy. 1973. Substrate depletion in different types of muscle and in liver during prolonged running. *Am. J. Physiol.* 225: 1045-1050.
7. Terjung, R.L., G.H. Klinkerfuss, K.M. Baldwin, W.W. Winder, and J.O. Holloszy. 1973. Effect of exhausting exercise on rat heart mitochondria. *Am. J. Physiol.* 225: 300-305.

8. Terjung, R.L., W.W. Winder, K.M. Baldwin, and J.O. Holloszy. 1973. Effect of exercise on the turnover of cytochrome c in skeletal muscle. *J. Biol. Chem.* 248: 7404-7406.
9. Winder, W.W., R.L. Terjung, K.M. Baldwin, and J.O. Holloszy. 1974. Effect of exercise on AMP deaminase and adenylosuccinase in rat skeletal muscle. *Am. J. Physiol.* 227: 1411-1414.
10. Winder, W.W., K.M. Baldwin, and J.O. Holloszy. 1974. Enzymes involved in ketone utilization in different types of muscle: adaptation to exercise. *Eur. J. Biochem.* 47: 461-467.
11. Terjung, R.L., K.M. Baldwin, W.W. Winder, and J.O. Holloszy. 1974. Glycogen repletion in different types of muscle and in liver after exhausting exercise. *Am. J. Physiol.* 226: 1387-1391.
12. Winder, W.W., K.M. Baldwin, and J.O. Holloszy. 1975. Exercise-induced increase in the capacity of rat skeletal muscle to oxidize ketones. *Canadian J. Physiol. and Pharmacol.* 53: 86-91.
13. Winder, W.W., K.M. Baldwin, R.L. Terjung, and J.O. Holloszy. 1975. Effects of thyroid hormone administration on skeletal muscle mitochondria. *Am. J. Physiol.* 228: 1341-1345.
14. Winder, W.W., F.W. Booth, R.H. Fitts, and J.O. Holloszy. 1975. Effect of exercise on response of liver lipogenic enzymes to a high fructose diet. *Proc. Soc. Exp. Biol. Med.* 148: 1150-1154.
15. Baldwin, K.M., R.H. Fitts, F.W. Booth, W.W. Winder, and J.O. Holloszy. 1975. Depletion of muscle and liver glycogen during exercise-protective effect of training. *Pflugers Arch.* 354: 203-212.
16. Baldwin, K.M., W.W. Winder, and J.O. Holloszy. 1975. Adaptation of actomyosin ATPase in different types of muscle to endurance exercise. *Am. J. Physiol.* 229: 422-426.
17. Terjung, R.L. and W.W. Winder. 1975. Exercise and thyroid function. *Medicine and Science in Sports* 7: 20-26.
18. Fitts, R.H. F.W. Booth, W.W. Winder, and J.O. Holloszy. 1975. Skeletal muscle respiratory capacity, endurance, and glycogen utilization. *Am. J. Physiol.* 228: 1029-1033.
19. Holloszy, J.O., F.W. Booth, W.W. Winder, and R.H. Fitts. 1975. Biochemical adaptation of skeletal muscle to prolonged physical exercise. In H. Howald and J.R. Poortmans, (editors), *Metabolic Adaptation to Prolonged Exercise, 2nd International Symposium on Biochemistry of Exercise*, Birkhauser Verlag, Basel, p. 438.
20. Conlee, R.K., M.J. Rennie, and W.W. Winder. 1976. Skeletal muscle glycogen: diurnal variation and effects of fasting. *Am. J. Physiol.* 231: 614-618.
21. Rennie, M.J., W.W. Winder, and J.O. Holloszy. 1976. A sparing effect of elevated plasma fatty acids on muscle and liver glycogen in the exercising rat. *Biochem. J.* 156: 647-655.
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B. Presentations at Regional, National, and International Meetings:

1. Presented invited paper at the Fourth International Symposium on Biochemistry of Exercise, Brussels, Belgium, June 19-22, 1979, "Thyroid Hormones and Muscular Exercise."

2. Presented invited paper at an International Symposium on Plasticity of Muscle, Konstanz, Germany, September 23-28, 1979, "Effects of Thyroid Hormones on Different Types of Skeletal Muscle."
3. Winder, W.W. Effect of endurance training on liver cAMP during prolonged submaximal exercise. Endocrine Society, Cincinnati, Ohio, 1980.
4. Beattie, M.A. and W.W. Winder. Attenuation of post-exercise ketosis in trained rats. FASEB, Chicago, Illinois, 1983.
5. Winder, W.W., V.M. Mitchell, and M.L. Terry. Sites of action of adrenal medullary hormones in fasted exercising rats. 7th International Congress of Endocrinology, Quebec City, Canada, 1984.
6. Terry, M.L. and W.W. Winder. Role of the adrenal medulla in fasted exercising rats. American College of Sports Medicine, San Diego, CA, 1984.
7. Winder, W.W. Effect of intravenous caffeine injections on liver glycogenolysis during prolonged exercise. American College of Sports Medicine, San Diego, CA, 1984.
8. Yang, H.T., K.I. Carlson, and W.W. Winder. Insulin does not influence muscle glycogenolysis in adrenomedullated exercising rats. FASEB, Anaheim, CA, 1985.
9. Carlson, K.I., H.T. Yang, and W.W. Winder. Effect of maternal exercise on fetal liver glycogen in the rat. Utah Academy of Sciences, Arts, and Letters, Provo, Utah, 1985.
10. Yang, H.T., R.L. Hammer, T.L. Sellers, J. Arogyasami, D.T. Carrell, and W.W. Winder. Effect of epinephrine on endurance of adrenomedullated rats. American College of Sports Medicine, Las Vegas, NV. 1987.
11. Arogyasami, J., H.T. Yang, and W.W. Winder. Effect of intravenous caffeine on liver and muscle glycogenolysis in endurance-trained rats. American College of Sports Medicine, Las Vegas, NV. 1987.
12. Presented invited paper at a Symposium on "Role of cyclic AMP in regulation of metabolism during exercise." Presented at the annual meeting of the American college of Sports Medicine, May 27, 1987, Las Vegas, NV. Role of cyclic AMP in regulation of glucose production during exercise.
13. Presented invited paper at a symposium on "Diabetes and Exercise: Regulation of Muscle Glucose Metabolism--Acute and Chronic Effects of Exercise." Annual meeting of the American College of Sports Medicine, May 26, 1988, Dallas, TX. Control of blood glucose during exercise and its influence on muscle metabolism.
14. Presented invited paper on "Regulatory aspects of Hepatic Glucose Metabolism." 22nd Annual Meeting of the Canadian Association of Sports Sciences, November 3, 1989, Montreal, Quebec, Canada. Hepatic glucose metabolism during exercise.
15. Winder, W.W., J. Arogyasami, I.M. Elayan, and D. Cartmill. Time course of the decline in malonyl-CoA in different types of muscle during exercise. American College of Sports Medicine, Salt Lake City, Utah, 1990.
16. Elayan, I.M. and W.W. Winder. Effect of glucose infusion on muscle malonyl CoA during exercise. American College of Sports Medicine, Salt Lake City, Utah, 1990.
17. Presented invited paper at a symposium on "Maintenance of Blood Glucose during Exercise." 1991. Annual Meeting, SW Chapter, American College of Sports Medicine, San Diego, CA.

18. Winder, W.W., S. Fisher, S. Gygi, J. Mitchell, E. Ojuka, and D. Weidman. Divergence of muscle and liver fructose 2,6-bisphosphate in fasted exercising rats. 14th International Diabetes Federation Congress, Satellite Symposium, Burlington, VT., 1991.
19. Duan, C., J.P. Jones, and W.W. Winder. Muscle malonyl-CoA in rat hindlimbs perfused with glucose and insulin. American College of Sports Medicine, Dallas, TX., 1992.
20. Winder, W.W. and C. Duan. Control of fructose-2,6-diphosphate in muscle of fasted exercising rats. American Diabetes Association, San Antonio, TX. 1992.
21. Winder, W.W. and J.P. Jones. Decrease in muscle malonyl-CoA unaffected by adrenodemedullation. American Physiological Society Conference on Integrative Biology of Exercise, Colorado Springs, CO., 1992.
22. Winder, W.W. Presented invited lecture ("Malonyl-CoA as a Metabolic Regulator") in a symposium on Integration of Carbohydrate and Fat Metabolism at the 9th International Conference on Biochemistry of Exercise, Aberdeen, Scotland, July 1994.
23. Winder, W.W. Presented an invited lecture ("Regulation of Fatty Acid Metabolism in Muscle") in a symposium ("Energy Metabolism during Exercise") at the Annual Meeting of the American College of Sports Medicine, Minneapolis, Minnesota, June 2, 1995.
24. Winder, W.W. and D.G. Hardie. Exercise-induced inactivation of acetyl-CoA carboxylase in skeletal muscle. Endocrine Society Annual Meeting, Washington, D.C., June 16, 1995.
25. Wilson, H.A., G.B. Call, L.M. Conley, B.B. Rasmussen, A. Hutber, and W.W. Winder. Phosphorylation of rat muscle acetyl-CoA carboxylase by cAMP-dependent protein kinase. 10th International Congress of Endocrinology, San Francisco, CA, June 14, 1996.
26. Hutber, C.A., D.G. Hardie, and W.W. Winder. Electrical stimulation increases AMP-activated protein kinase activity and modifies kinetic properties of acetyl-CoA carboxylase in rat skeletal muscle. 10th International Congress of Endocrinology, San Francisco, CA, June 14, 1996.
27. Rasmussen, B.B. and W.W. Winder. Effect of exercise intensity on skeletal muscle malonyl-CoA and acetyl-CoA carboxylase. 10th International Congress of Endocrinology, San Francisco, CA, June 14, 1996.
28. Winder, W.W. Invited lecture. Malonyl-CoA - Putative regulator of fatty acid oxidation in skeletal muscle. Seminar, Department of Pharmacology, University of Alberta, Edmonton, Alberta, Canada, November 22, 1996.
29. Rasmussen, B.B. and W.W. Winder. AMP-activated protein kinase, acetyl-CoA carboxylase, and malonyl-CoA in skeletal muscle after sprinting. 79th Annual Meeting of the Endocrine Society, Minneapolis, MN, June 1997.
30. Winder, W.W. Invited lecture on Intramuscular mechanisms regulating fatty acid oxidation during exercise. Second Copenhagen Muscle Research Centre Conference, Skeletal Muscle Metabolism - Regulation, exercise, diabetes. Copenhagen, Denmark, October 23-26, 1997.
31. Winder, W.W. Invited lecture on Regulation of skeletal muscle fatty acid metabolism by malonyl-CoA. American Physiological Society Environmental and Exercise Physiology and Endocrinology and Metabolism Sections Symposium on Control of Mitochondrial Free Fatty Acid Uptake and Oxidation in Working Skeletal Muscle, FASEB Annual Meeting, San Francisco, CA, April, 1998.

32. Winder, W.W. Invited lecture on The role of malonyl-CoA in fuel selection by the muscle. Symposium on Fuel Selection by Muscle during Exercise - Influence of Intensity, Nutrition and Training Status. Annual Meeting of The American College of Sports Medicine, Orlando, Florida, June 1998. (Co-Chair of the Symposium)
33. Hayashi, T., M.F. Hirshman, E. Kurth, W.W. Winder, and L.J. Goodyear. Contraction and AICAR, an activator of 5'AMP-activated protein kinase, stimulate glucose transport by a similar mechanism. Annual Meeting of the American Diabetes Association, June, 1998.
34. Winder, W.W. Invited lecture on AMP-activated protein kinase in skeletal muscle during exercise. Symposium entitled, Molecular Regulation of Skeletal Muscle: Glucose Transport Mediated by Exercise. American Diabetes Association Annual Meeting, San Diego, CA, June 19, 1999.
35. Winder, W.W. Invited lecture on Recent advances in regulation of carbohydrate and fat metabolism during exercise. National Conference on Training, Nutrition, and Biochemistry of Sport, Nan Daihe, Peoples Republic of China, August 4, 1999.
37. Winder, W.W., B.F. Holmes, D.S. Rubink, E.B. Jensen, M. Chen, and J.O. Holloszy. Chronic chemical activation of AMP-activated protein kinase increases mitochondrial enzymes and GLUT4 in skeletal muscle of resting rats. American Diabetes Association Annual Meeting, San Antonio, TX, June 10, 2000.
38. Winder, W.W. Invited lecture on Roles of AMP-activated protein kinase in skeletal muscle - possible connections to Type 2 diabetes. Marquette University, Department of Biology, April 28, 2000.
39. Winder, W.W. Invited lecture on Actions of AMP-activated protein kinase in muscle - possible roles in Type 2 diabetes. Novartis Institute of Biomedical Research, Summit, NJ, May 25, 2000.
40. Winder, W.W., B.F. Holmes, D.S. Rubink, E.B. Jensen, M. Chen, and J.O. Holloszy. Chronic chemical activation of AMP-activated protein kinase increases mitochondrial enzymes and GLUT4 in skeletal muscle of resting rats. Oral Presentation at the American Diabetes Association Annual Meeting, San Antonio, TX, June 10, 2000.
41. Winder, W.W. Invited lecture on Acute and chronic effects of AMP-activated protein kinase in skeletal muscle. Symposium on AMP-activated protein kinase, Boston University Medical Center, Boston, MA December 4-5, 2000.
42. Winder, W.W. Invited lecture on AMP-Activated protein kinase-possible target for treatment of type 2 diabetes, Joslin Diabetes Center, Harvard University School of Medicine, Boston, MA, March 22, 2001.
43. Winder, W.W. Invited lecture on AMP-activated protein kinase - sensing intracellular metabolic demand, Symposium on Genomics and Molecular Basis of Exercise and Environmental Physiology, Molecular Control of Thermogenesis, Experimental Biology 2001, Orlando, Florida, April 4, 2001.
44. Winder, W.W. Invited lecture on Glucose Utilization during Exercise at the FASEB summer research conference on Biology of Glucose Transport at Snowmass, Colorado, June 30-July 5, 2001.
45. Winder, W.W. Invited lecture on Roles of AMP-activated protein kinase in muscle glucose transport at Annual meeting of the Southwest Chapter of the American College of Sports Medicine, Salt Lake City, Utah, November 16, 2001.

46. Winder, W.W. Invited lecture on Energy Sensing and Signaling by AMP-activated Protein Kinase in Muscle - Matching Energy Demands with Energy Production at Department of Veterinary Medical Science, University of Missouri, Columbia, MO, February 21, 2002.
47. Winder, W.W. Invited lecture on Energy Sensing and Signaling by AMP-activated Protein Kinase in Muscle - Matching Energy Demands with Energy Production at a Symposium towards understanding the essentiality of physical exercise/activities to protect against the hypokinetic diseases. Sponsored by The Japanese Ministry of Education and Science and Department of Life Sciences, Graduate School of Arts and Sciences, The University of Tokyo, Tokyo, Japan, March 1-2, 2002.
48. Winder, W.W. Invited seminar on Energy Sensing and Signaling by AMP-activated Protein Kinase in muscle - Matching Energy Demands with Energy Production, Department of Biochemistry and Molecular Biophysics, University of Arizona, Tucson, AZ, April 2, 2002.
49. Winder, W.W. Invited seminar on Energy Sensing and Signaling by AMP-activated Protein Kinase in Muscle - Matching Energy Demands with Energy Production, Department of Cell Biology and Neuroscience, Rutgers, University, Piscataway, NJ, May 3, 2002.
50. Winder, W.W. Invited speaker in Mini-Symposium on Role of Protein Kinases in Muscle Metabolism at the 49th Annual Meeting of the American College of Sports Medicine, St. Louis, MO, May 29, 2002. Title: AMP-activated protein kinase and its role in regulation of fatty acid metabolism.
51. Winder, W.W. Invited speaker at Washington University Applied Physiology Reunion Meeting, Eric P. Newman Education Center, Washington University School of Medicine, St. Louis MO, June 1, 2002. Title: AMP-activated protein kinase: coupling of contraction with metabolism and gene regulation.
52. Winder, W.W. Invited speaker at AMPK 2002, 2nd International Symposium on AMP-activated protein kinase, Dundee, Scotland, UK, September 12-14, 2002. Title: Long-term regulation of AMPK and ACC in skeletal muscle.
53. Winder, W.W. Invited speaker at Taiwan Sports Medicine Conference, National Yang-Ming University, Taipei, Taiwan, November 23, 2002. Titles: AMP-Activated Protein Kinase: Possible Target for Treatment of Type 2 Diabetes, and Can We Reverse the Trends of Increased Incidence of Inactivity-Related Diseases - Recommendations for Policy on Health Promotion.
54. Winder, W.W. Invited seminar speaker, National College of Physical Education and Sport, Taipei, Taiwan, November 25, 2002. Title: AMP-activated protein kinase: Possible target for treatment of Type 2 Diabetes.
55. Winder, W.W. Invited speaker at annual meeting of the Japan Insulin Study Group, Osaka, Japan, February 8, 2003. Title: AMP-activated protein kinase, a metabolic master switch: possible target for treatment of type 2 diabetes.
56. Winder, W.W. Invited speaker at meeting of the Metabolism Group, University of Utah Division of Endocrinology and Metabolism, November 4, 2003. Title: AMP-activated protein kinase, a metabolic master switch: possible target for treatment of type 2 diabetes.

57. Winder, W.W. Invited speaker at the 3rd International Conference on AMP-Activated Protein Kinase, Lorne, Australia, Title: AMP-Activated Protein Kinase and Endurance Training. March 24, 2004.
58. Taylor, E.B., D. Hurst, L.J. Greenwood, J.D. Lamb, T.D. Cline, S.N. Sudweeks, W.W. Winder. Oral presentation at the 3rd International Conference on AMP-Activated Protein Kinase, Lorne, Australia, Title: Effects of Endurance Training on LKB1 Expression and AMPKK Activity in Skeletal Muscle, Heart, and Liver. March 23, 2004.
59. Winder, W.W. Invited seminar, Center for Human Nutrition, University of Colorado Health Science Center, Denver, Colorado. Title: AMP-Activated Protein Kinase - A Metabolic Master Switch: Possible Target for Treatment of Type 2 Diabetes. May 6, 2004.
60. Winder, W.W. Invited speaker at American Physiological Society Meeting on Integrative Biology of Exercise, Austin, Texas, October 9, 2004. Title: AMPK Signaling and Endurance Training.
61. Taylor, E.B., D. Hurst, L.J. Greenwood, J.D. Lamb, T.D. Cline, S.N. Sudweeks, W.W. Winder. Poster presentation at American Physiological Society Meeting on Integrative Biology of Exercise, Austin, Texas, October 9, 2004. Title: Effects of Endurance Training on LKB1 Expression and AMPKK Activity in Skeletal Muscle and Heart.
62. Hurst, D., E.B. Taylor, T.D. Cline, C.L. Compton, J.D. Lamb, W.W. Winder. Poster presentation at American Physiological Society Meeting on Integrative Biology of Exercise, Austin, Texas, October 9, 2004. Title: Electrical Stimulation of Gastrocnemius Muscle Increases Phosphorylation of AMP-activated Protein Kinase without a Measurable Increase in Activity of AMP-Activated Protein Kinase Kinase.
63. Winder, W.W. Invited speaker at meeting of the Metabolism Group, University of Utah Division of Endocrinology and Metabolism, October 14, 2004. Title: AMP-activated protein kinase, a metabolic master switch.
64. Winder, W.W. Invited speaker at International Symposium on Obesity and Diabetes at Yeungnam University School of Medicine, Daegu, Korea, May 3, 2005. Title: AMP-activated protein kinase, a metabolic master switch - Possible target for prevention and treatment of type 2 diabetes.
65. Winder, W.W. Invited speaker at NRL International Mini-Symposium on Recent Progress in the research of diabetes and related metabolic disorders, University of Ulsan College of Medicine, Seoul, Korea May 4, 2005. Title: AMP-activated protein kinase, a metabolic master switch - Possible target for prevention and treatment of type 2 diabetes.
66. Winder, W.W. Invited speaker at the annual meeting of the American College of Sports Medicine at a symposium entitled, Training for Endurance and Strength - Lessons from Molecular Biology June 3, 2005, Nashville, TN. Title: The Role of AMP kinase in the molecular adaptation to endurance exercise.
67. Taylor EB, Lamb JD, Hurst RW, Chesser DG, Herway ST, Lindsay BK, Ellingson WJ, Kim JE, Porter BB, and Winder WW. Time-course of increases in LKB1, citrate synthase, and hexokinase with endurance training in muscle. Poster Presentation, Annual Meeting of the American College of Sports Medicine, June 4, 2005, Nashville, TN. Med Sci Sports Exercise 37:2295, 2005.
68. Holmes BF, Olson AL, Winder WW, and Dohm GL. Regulation of muscle GLUT4 Enhancer Factor 2 by AMP-activated protein kinase. Poster Presentation, Annual Meeting of the

- American Diabetes Association, San Diego, CA, June 2005. *Diabetes* 54 (Suppl 1):A262, 2005.
69. Winder WW. Invited Speaker at Symposium: Mitochondria and Regulation of the Cellular Energy State, Bioenergetics Subgroup Meeting, Biophysical Society, Salt Lake City, Utah, February 18, 2006. Cellular Energy Sensing and Signaling by AMP-activated Protein Kinase.
 70. Winder WW. Invited Speaker at Symposium entitled AMPK: Impact on Mammalian Metabolism and Disease. Effects of physical training on AMPK and LKB1. FASEB Summer Research Conference, Snowmass, CO, August 16, 2006.
 71. Winder, W.W. Invited speaker at meeting of the Metabolism Group, University of Utah Division of Endocrinology and Metabolism, April 19, 2007. Title: Roles of LKB1 in skeletal muscle.
 72. Thomson DM, Brown JD, Kim HJ, Chesser DG, Fillmore NA, Porter BB, Tall JH, Barrow JR, Winder WW. LKB1 is required for AICAR-induced elevations in hexokinase II content in skeletal muscle. Oral presentation at the annual meeting of the American Diabetes Association, Chicago, IL, June 25, 2007.
 73. Bravold DJ, Allred DR, Beckstead DJ, Thomson DM, Kim HJ, Fillmore N, Condon BM, Brown JD, and Winder WW. Regulation of LKB1-STRAD-MO25 complex expression and activation of AMPK in skeletal muscle by thyroid hormones. Poster presentation at the annual meeting of the American Diabetes Association, Chicago, IL, June 25, 2007.
 74. Chesser DG, Thompson BR, Auton T, Thomson DM, and Winder WW. Effects of endurance training on the AMPK response to exercise. Poster presentation at the annual meeting of the American Diabetes Association, Chicago, IL, June 25, 2007.
 75. Winder WW. Cellular energy sensing and signaling by AMP-activated protein kinase. LDS Scientists Symposium, Snowbird Ski Resort, August 17-18, 2007.
 76. Winder WW. Invited seminar speaker, University of North Texas Department of Integrative Physiology, Roles of LKB1 and AMPK in Skeletal Muscle. November 2, 2007.
 77. Winder WW and Thomson DM. Invited speaker at symposium entitled "AMPK: In Sickness and Health from Molecule to Man." "Roles of LKB1 and AMPK Signaling in Skeletal Muscle." FASEB Summer Research Conference, Snekkersten, Denmark, August 10-15, 2008.
 78. Thomson DM, Fillmore N, Ellsworth SK, Brown JD, Fick CA, Winder WW, Gordon SE. Contraction-induced AMPK activity is elevated in aged skeletal muscle. Poster presentation at FASEB Summer Research Conference, "AMPK: In Sickness and Health from Molecule to Man." Snekkersten, Denmark. August 10-15, 2008.
 79. Winder WW. Invited speaker at symposium entitled, "Pathways to enhance muscle insulin sensitivity." "Targeting AMPK for prevention and treatment of type 2 diabetes." American Diabetes Association 69th Scientific Sessions, New Orleans, LA. June 5-9, 2009.
 80. Fillmore N, Jacobs DL, Mills D, Winder WW, Hancock CR. Effect of high fat diet and chronic chemical activation of AMPK on skeletal muscle mitochondria. International Conference on Biochemistry of Exercise, Guelph, Ontario, Canada, June 1-4, 2009.
 81. Evanson BG, Hepworth SD, Winder WW, Thomson DM, Hancock CR. Muscle specific LKB1 deficiency results in slowed muscle relaxation and exaggerated fatigue. International Conference on Biochemistry of Exercise, Guelph, Ontario, Canada, June 1-4, 2009.

82. Mongillo AD, Malan BB, Kenney SG, Brough TA, Winder WW, Thomson DM. Mitochondrial enzyme deficiency may underlie myopathic phenotype of female muscle specific LKB1-KO mice. Experimental Biology, New Orleans, LA. April 18-22, 2009.
83. Brown JD, Mongillo AD, DiGiovanni RA, Lane MD, Winder WW, Thomson DM. LKB1/AMPK signaling in the diaphragm. Experimental Biology, New Orleans, LA. April 18-22, 2009.
84. Smith CM, Kemp JT, Compton RA, Bowler J, Thomson DM, Winder WW. Characterization of the AMP-activated protein kinase kinase (AMPKK) complex in adult skeletal muscle. American Diabetes Association, Orlando, FL, June 24-29, 2010.

C. Membership in Professional Societies:

1. American Physiological Society
2. American College of Sports Medicine
3. American Diabetes Association

D. Research Awards:

1. NASA Pre-doctoral Traineeship, 1966-1969.
2. NIH Pre-doctoral Fellowship, 1970-71.
3. NIH Post-doctoral Research Traineeship, 1971-1972.
4. NIH Post-doctoral Research Fellowship, 1972-1974.
5. NIH Research Career Development Award, 1978-1983.
6. Annual Zoology Department Award for Outstanding Achievement and Service, 1985
7. Annual College of Biology and Agriculture Creative Achievement Award, 1989.
8. Outstanding Achievement in Sponsored Research Award, BYU, 1993.
9. College of Biology and Agriculture Thomas L. Martin Professorship, 1994-6
10. Annual Sigma Xi Lecture Award. Lecture presented March 18, 1999.
11. Karl G. Maeser Research and Creative Arts Award, August 21, 2000.
12. Annual College of Biology and Agriculture Professorship, September 2003.
13. Annual PDBio Department Award for Outstanding Achievement and Service, 2004.
14. Brigham Young University Alumni Professorship, 2007.

E. Collaborations:

1. D. Grahame Hardie, PhD, Department of Biochemistry, The University, Dundee, Scotland.
2. Laurie Goodyear, PhD, Joslin Diabetes Center, Harvard University, Boston, MA.
3. Gary Merrill, PhD, Rutgers University, New Brunswick, New Jersey.
4. Lynis Dohm, PhD, Department of Biochemistry, East Carolina University School of Medicine, Greenville, North Carolina.
5. John O. Holloszy, MD, Washington University School of Medicine, St. Louis, MO.
6. Erik Richter, MD, Copenhagen Muscle Research Center, Copenhagen, Denmark.

ADMINISTRATIVE ACTIVITIES

- A. Principal Investigator on 9 NIH grants (33 years).
- B. Section Head, Physiology/Pharmacology, Division of Biochemistry, Physiology, and Pharmacology, University of South Dakota School of Medicine, 1981-1982.
- C. Secretary, USD School of Medicine Faculty, 1981-1982.
- D. Chair, Minisymposium at USD School of Medicine, May 22, 1981, "Metabolic Regulation in the Liver."
- E. Member, Introduction to Clinical Medicine Committee, USD School of Medicine, 1981-1982.
- F. Member, Search Committee for Chair of the Department of Physiology/Pharmacology, USD School of Medicine, 1982.
- G. Coordinator of the Endocrinology Journal Club consisting of clinicians and basic scientists at USD School of Medicine, 1980-1982.
- H. Member, Pre-Medical Committee, BYU, 1985-1989.
- I. Member, Benson Scholarship Committee, BYU, 1985-1990.
- J. Member, Search Committee, Zoology faculty member replacement, 1987.
- K. Chair, Rank Advancement Committee, Zoology Dept. 1988-98.
- L. Member, College Research Committee, 1992-98.
- M. Chair, College Small Animal Committee, 1992-2000.
- N. Member, Rank Advancement Committee, College of Biology and Agriculture, 1995-6.
- O. Member, Search Committee for Dean of College of Physical Education, 1995.
- P. Member, University Institutional Review Board, Human Subjects Committee, 1997-98.
- Q. Chair, Search Committee, Zoology Physiology/Cell Biology replacements (4), 7 candidates, 1998.
- R. Member, Department Professional Development Committee, 1998-9.
- S. Coordinator, Division of Cellular Biology, Department of Zoology, 1998-99.

- T. Assistant Department Chair, 1999-2009.
- U. Member College Curriculum Committee, 2000-2002.
- V. University Biosafety Committee, 2000-2012.
- W. Chair, Rank Advancement Committee, Department of Physiology and Developmental Biology, 2005-2008.
- X. Chair, Department of Physiology and Developmental Biology, Jan 2009-Aug 2012.

SERVICE ACTIVITIES

A. Professional Service Activities

1. Reviewer for the following Journals:

American Journal of Physiology: Endocrinology, and Metabolism
 American Journal of Physiology: Regulatory, Integrative, and Comparative Physiology
 Diabetes
 Journal of Applied Physiology
 Journal of Clinical Investigations
 Medicine and Science in Sports
 Metabolism
 Proceedings of the Society for Experimental Biology and Medicine
 Proceedings of the National Academy of Sciences
 Quarterly Journal of Experimental Physiology
 Canadian Journal of Physiology and Pharmacology

- 2. Member of the Editorial Board, Medicine and Science in Sports, 1982-1988.
- 3. Member of the Editorial Board, American Journal of Physiology: Endocrinology and Metabolism, 1985-1991, 2007-2012.
- 4. Member of the Editorial Board, Journal of Applied Physiology, 1985-99; 2005-2007.
- 5. Outside Reviewer for NSF and NIH (3 applications); Reviewer for Respiratory and Applied Physiology Study Section, NIH, 1988, 1989, 1993. Reviewer for Lung Biology and Pathology Study Section, NIH, 1992. Reviewer for Heart, Lung, and Blood Special Review Committee, NIH, 2001.

6. Member of the NIH Reviewers Reserve, 1989-1993.
7. Chair, Endocrines area, Abstract Review Committee, Annual Meeting of the American College of Sports Medicine, 1982 and 1985.
8. Outside reviewer, Natural Sciences and Engineering Research Council of Canada, 1989.
9. Outside Reviewer for Dissertation Defense, Darrell Belke, Department of Pharmacology, University of Alberta, Edmonton, Alberta, Canada, November 22, 1996.
10. Associate Editor, Journal of Applied Physiology, 2001- 2005.
11. Reviewer of Abstracts, American Diabetes Association 2003, 2005, 2006 Annual Meeting.
12. Lectures and Seminars:
 - a. Minisymposium on "Physiological and Biochemical Adaptations to Exercise," USD School of Medicine, 1980.
 - b. Division of Biochemistry, Physiology, and Pharmacology Seminar, USD School of Medicine, Fall 1981, "Control of Liver Glycogenolysis by Liver Sympathetic Nerves."
 - c. Zoology Department Seminar, BYU, Fall 1982, "Muscle Adaptations to Exercise."
 - d. Sigma XI Paper of the Month Lecture, BYU, February 14, 1984, "Control of Blood Glucose during Exercise."
 - e. Rivergrove Ward Relief Society, Provo, June 7, 1984, "Adaptations to Exercise."
 - f. Science Day Lecture, BYU, November 1983-1999, "Adaptations to Distance Running" and Use of Exercise in Prevention and Treatment of Type 2 Diabetes.
 - g. Physiology/Anatomy Division Seminar, BYU, November 15, 1984, "Post-Exercise Ketosis."
 - h. Biochemistry Seminar, BYU, November 16, 1984, "Control of Glycogenolysis."
 - i. Careers Class, Farrer Middle School, Provo, September 4, 1985. "How to Become a Scientist."
 - j. Biochemistry Seminar, BYU, September 17, 1987. "Control of blood glucose during exercise."
 - k. Food Science and Nutrition Seminar, BYU, February 19, 1988. "Control of blood glucose during exercise."
 - l. College of Biology and Agriculture Awards Night lecture, BYU, February 7, 1989. "Of Watering Troughs, Blood Sugar, and Exercise."
 - m. Biology 100 Seminar. BYU (F88, W89, F89, W90, F90, W91, W92, F93). "Muscles and mitochondria: what happens when you exercise."
 - n. Geology "Lunch Bunch" Seminar, BYU, January 10, 1990, "Exercise and Blood Sugar."
 - o. Food Science and Nutrition Seminar, BYU, February 16, 1990, "Glucose Production during Exercise."
 - p. Physiology and Anatomy Division Seminar, BYU, Feb. 20, 1992. "Intracellular signals involved in glucoregulation during exercise."
 - q. Research Proposal Writing Workshop Panelist, BYU, March 5, 1992.
 - r. College of Biology and Agriculture seminar, April 4, 1996. How to make muscles use fat.
 - s. Geology Lunch Bunch seminar, BYU, November 1997.

- t. Department of Food Science and Nutrition seminar, Stimulation of Fat Utilization by Muscle Contraction. November 20, 1998.
- u. Department of Microbiology Seminar, January 21, 2000. Roles of AMP-activated protein kinase in muscle.
- v. Brigham Young University Division of Continuing Education, March 2, 2005. The trigger that tells muscles to burn fat.
- w. College of Biology and Agriculture Technology Expo, April 4, 2005. Computer simulation of muscle contraction.

TEACHING ACTIVITIES

A. Courses Taught:

1. Physiology 420/720, Medical Student Physiology Course, USD School of Medicine. Coordinated the multidisciplinary block of the course on endocrinology and reproduction. Taught physiology of endocrines and reproduction. Assisted with laboratories, examinations, and student consultation for entire course (1979-1982). Coordinated entire course, 1982.
2. Physiology 771, Advanced Endocrinology, USD School of Medicine. Coordinator and teacher, 1981.
3. Zoology 261 (355 and PDBio 305), Elementary Human Physiology, BYU (W83,F84,F85,F86,F88,F90,S92,F92,F93,F94, F95,F96,F97,F98,W99,F99,F00,W01,F01,F02,W03,F03,F04,F05,F06,F07).
4. Zoology 565/PDBio 565, Endocrinology, BYU, (W84,W85,W86,W87,W88,W89,W90,W91,W92,W93,W94,W95,W96,W97,W98,W99,W00,W02,W04,W05,W06,W07,W08,F08,W09,F09,W10,F10,W11,F11,W12).
5. Zoology 566, Experimental Endocrinology, BYU, (W84,W85,W86,W87,W88,W89,W90,W91,W92,W93,W94,W95,W96,W97).
6. PDBio 601, Cellular and Molecular Physiology, BYU (F06, F07, F08, F09,F10,F11) (Team taught)
7. Zoology 662, Advanced Topics in Physiology, BYU, (F83).
8. Religion 121, Introduction to the Book of Mormon, BYU, (F84,F85).
9. Religion 122, Introduction to the Book of Mormon, BYU, (W84).

B. Other Teaching Activities:

1. Supervised laboratory instructors for Zoology 261 (355), PDBio 305 (W1983-Sp2007). Updated experiments and laboratory manuals.

2. Head of team to produce a computer simulation of muscle contraction experiment for PDBio 305 and PDBio 363 labs.
3. Head of team to produce a computer simulation of Mammalian Neuron Action Potentials for PDBio 305 and PDBio 363 labs.

C. Graduate Student/Post-doctoral Fellow Supervision:

1. Mark Beattie (PhD, 1983, USD School of Medicine). First author on two publications, coauthor on 3 others. Mark completed medical school training at USD School of Medicine in 1987. He now specializes in radiology in Blue Ridge, GA.
2. Kim Carlson (MS, BYU, 1985). First author on two publications. Kim completed her medical training at the University of Nebraska School of Medicine.
3. Lynn Terry, BYU. Coauthor on two publications. Lynn did not complete his masters degree here at BYU. He attended medical school at the University of Minnesota and is currently a radiologist in the Quincy Medical Group, Quincy, Illinois.
4. Steve Yang (PhD 1987). First author on two publications, coauthor on 9 others. Post-doctoral fellow in the Department of Physiology and Biophysics SUNY in Syracuse, N.Y. Research Assistant Professor, Department of Physiology, University of Missouri.
5. Dave Arnall (PhD, 1985). Dave obtained his degree in Physical Education. He did his research project in my laboratory. Post-doctoral position at the University of Illinois, Chicago, October 1985-1987. Faculty member Northern Arizona University. Physical Therapy Department Chair, East Tennessee State University.
6. James Marker (PhD, 1985). James obtained his degree in Physical Education. He did his research project in my laboratory. He worked in a post-doctoral position at Washington University School of Medicine in St. Louis, 1985-1988. Faculty member Human Biology Department, U. of Wisconsin at Green Bay.
7. Josephine Arogyasami (PhD, 1988). Josephine was a member of the Biology faculty and then Dean at Westmar College in Le Mars, Iowa. Currently teaching Biology, Southern Virginia College, Buena Vista, VA.
8. Grant Wilson (MS, 1989). Grant taught as a member of the part-time Biology faculty at Utah Valley Community College, Orem, Utah. He completed requirements for the PhD at Utah State in 2002. He taught at AIMS Community College, Greeley, CO.
9. Ikram Elayan (MS, 1990). Ikram received her PhD in Pharmacology at the University of Utah (1994). She completed a Post-doctoral fellowship at the Naval Medical Research Institute in

Bethesda, MD. She works as a pharmacology/toxicology reviewer for the Food and Drug Administration.

10. Debbie Cartmill (MS, 1991). Debbie worked as a manager of the University-Utah Andrology Lab, Salt Lake City, Utah.
11. Changping Duan. (Post-doctoral fellow, 1990-1992). Changping is now employed at the Cardiovascular and Pulmonary Research Center, Allegheny-Singer Research Institute, Pittsburgh, PA.
12. Jared Jones (MS, 1993). Jared completed his PhD program in Biochemistry at East Carolina University School of Medicine, 1997. He is now working for a pharmaceutical firm, Savvysherpa, in Draper UT.
13. Garrett Trumble (PhD student in biochemistry who did his research in my laboratory. Ph.D., 1994). Director of Research and Development, Neways Science, Springville, UT
14. Paul MacLean (MS, 1994). Paul received his PhD in Biochemistry at East Carolina University School of Medicine. He did a post-doctoral fellowship there. He is now a member of the faculty at the Center for Human Nutrition at the University of Colorado Health Sciences Center.
15. Gary Merrill, PhD (Visiting Professor from Rutgers University) - Worked in my laboratory July 1996 to June 1997.
16. Adrian Hutber (PhD, 1997). Adrian is currently Distance Education Director for Human Kinetics Publishers, 1607 North Market Street, Champaign IL 61820-2200.
17. Heather Wilson (Decided to work with John Bell after 1 year). She is now teaching at Utah Valley University, Orem UT.
18. Blake Rasmussen (PhD, 1997). Blake served in a Postdoctoral Program in the Metabolism Unit of Shriners Burn Institute, Galveston, TX. He received the Best Dissertation Award from Sigma Xi, 1997. He held a faculty position at The University of Southern California in Los Angeles in the Department of Kinesiology until 2004. He then moved to the University of Texas at Galveston where he holds a faculty position. He is serving as an editorial board member of the *Journal of Applied Physiology*.
19. Christian Carlson (MS, 1998). Christian received his MD from Uniformed Services University of the Health Sciences, 2002. He now practices pediatric radiology in San Antonio, TX.
20. Emily Kurth (MS, 1999), Recipient of Ted and Della Hanks Scholarship). Emily is currently home with her children.

21. Burton Holmes (MS, 2000). Burton completed a PhD program at East Carolina University School of Medicine in 2005. He completed a post-doctoral program at the University of Arizona. He is currently employed by Ventana Medical Systems, Ora Valley, AZ.
22. Soo-Hyun Park (Post-doctoral fellow). Feb 2001 - Mar 2002.
23. Eric Taylor (PhD, 2005). Eric did a 2 year Post-doctoral program at the Joslin Diabetes Center at Harvard Medical School in Boston, MA. He did a second post-doctoral program at the University of Utah, Department of Biochemistry. Received a K22 Career Transition Award from NIH, 2010. He is now a member of the faculty in the Department of Biochemistry, University of Iowa.
24. Cori Compton (MS, 2004). Cori worked as a technician in a research lab at the University of Utah. She is now in Arizona in the Phoenix Children's Hospital as a Clinical Research Coordinator. She is married: Cori Compton Renshaw.
25. Denise Hurst (MS, 2007). Denise is working as an HLA technologist, Histocompatibility and Immunogenetics Laboratory, University of Utah Hospitals and Clinics.
26. Dustin Rubink (MS, 2004). Dustin graduated from dental school at Virginia Commonwealth University in Richmond, VA in 2009. He has his own practice 712 4th Street, Deer Lodge, MT 59722.
27. William Ellingson (MS, 2006). Will completed dental school in Cincinnati, Ohio in 2010. He is now practicing dentistry in Sandy, Utah.
28. Seth Herway (MS 2006). Seth completed medical School at the University of Utah in 2010. He is now practicing anesthesiology in San Diego, CA.
29. Devon Brandvold (MS 2007). Devon completed Medical School at St. Louis University in 2011. He is now practicing internal medicine in Miami Florida.
30. David Chesser (MS 2007). Dave completed dental school at Virginia Commonwealth University, 2012. He is now in the US Air Force practicing in North Chesterfield, Virginia.
31. David Thomson (Post-doctoral fellow). Dave worked in my lab from Jan 2006 – April 2008. Dave was hired as a faculty member in the Department of Physiology and Developmental Biology in April 2008.
32. Nathan Nakken (MS 2008). Nathan completed his DO at Rocky Mountain osteopathic school in Denver. He now is a family practice DO in Quincy IL.

33. Natasha Fillmore (MS 2010). Natasha received her PhD at University of Alberta under Dr. Gary D. Lopaschuk. She is serving as a post-doctoral fellow in the laboratory of Dr. Elizabeth Murphy, NIH National Heart, Lung, and Blood Institute.
34. Cody Smith (MS 2010). Cody is pursuing a PhD at East Carolina School of Medicine.
35. John Merrill (MS 2012) (Co-advisor, Chad Hancock).

CURRICULUM VITAE

(Updated: Dec. 2015)

1. Personal:

Name: Dixon J. Woodbury

Academic Rank: Professor

Department: Physiology and Developmental Biology

Office Address: Department of Physiol. & Dev. Biol.
Brigham Young University
549 WIDB
Provo, UT 84602
(801) 422-7562

2. Educational History:

Name of Institution	Year Graduated	Major	Degree
University of California, Irvine	December 1986	Physiology and Biophysics	Ph.D.*
University of Utah	June 1980	Physics	B.A.
University of Utah	June 1980	Chemistry	B.A.

*Dissertation topic: Vesicle-Membrane Fusion; Advisor: Professor James E. Hall

3. Professional Positions

Employer	Dates	Position
Department of Physiology and Dev. Biol. Brigham Young University	2012-2018	Chair
Department of Physiology and Dev. Biol. Brigham Young University	2003-present	Professor
Department of Physiology and Dev. Biol. Brigham Young University	2001-2003	Associate Professor
Department of Physiology, Wayne State University School of Medicine	1997-2001	Associate Professor (with tenure)
Department of Physiology, Wayne State University School of Medicine	1990-1997	Assistant Professor
Howard Hughes Medical Institute (at Brandeis University)	1989-1990	Research Associate
Brandeis University (Waltham, MA); Graduate Department of Biochemistry	1986-1989	Postdoctoral Fellow

4. Professional Societies:

Biophysical Society

- Exocytosis/Endocytosis Subgroup
- Membrane Biophysics Subgroup
- Membrane Structure and Assembly Subgroup

Society for Neuroscience (National)

- Society for Neuroscience, Intermountain Chapter

5. Honors/Awards:

2008: College Professorship Award, Brigham Young University

2004: College Creative Achievement (Research) Award, Brigham Young University

2003: Departmental Achievement and Service Award, Brigham Young University

2000: University Service Award, Wayne State University School of Medicine

1997: College Teaching Award, Wayne State University School of Medicine.

1986-88: Muscular Dystrophy Association Postdoctoral Fellowship.

1986: Harold E. Lamport Award, Biophysical Society.

1980, 1985: Regents' Fellowship, University of California.

1980: B.A. - magna cum laude in Chemistry, University of Utah.

6. Committees and Professional Citizenship Activities:

Departmental Service:

Department of Physiology and Developmental Biology at BYU

Department Chair, 2012-present

Chair, Graduate Committee, 2003-2012

Curriculum Committee, 2002-2003

Zoology Department at BYU

Graduate Committee (Zoology Department and Department "B"), 2001

Physiology Department at WSU

Graduate Committee, 1994-2001.

Sabbatical Leave Committee, 1994-95, 1999-2001.

Faculty Search Committee, 1996-97, 1998-2000.

Salary Committee, 1996-97, 1998-99.

Finance Committee, 1996-97.

Computer Hardware Committee, 1995-96.

Committee on Computer Assisted Instruction, 1991-95.

Strategic Planning Committee, 1992.

Other Departmental Duties at WSU:

Founder and administrator of Summer Undergraduate Research Fellowship (SURF) program in physiology. The SURF program has an annual budget of \$7,800 which provides matching support for up to 6 undergraduates to work in a laboratory within the department. Each selected student spends the summer working on a short research project in the laboratory of their choice. Typically about 10-25% of all applicants are accepted into the program each year, of which one student later applies and is accepted into the departmental Ph.D. program. SURF projects often lead to several published papers and a number of abstracts/posters each year. 1992-2001.

Co-Supervisor of the Department's Senior Lab Technician, Christine Cupps. 1996-1999.

Organizer (and co-founder) of the Membrane Physiology Journal Club (MPJC). The MPJC has about 32 active members from 8 divisions or departments who regularly present original research or journal articles to the rest of the group. 1991-1998.

College Service:

College of Life Sciences (previously: Biology and Agricultural Sciences) at BYU

Health Professions Office Review Committee (2002-2003)

College Curriculum Committee (2002-2003)

College Graduate Council (2006, 2010-present)

Medical School at WSU :

IBS (Interdisciplinary Biomedical Sciences) Recruitment and Selection Committee 1998-2001

Selected for evaluation of Graduate-Professional Scholarship Applications, 1994.

Supplemental Research Equipment Fund Review Committee - Medical Subcommittee, 1993.

Neuroscience Program Colloquium Committee (planned the 18th Gordon H. Scott Colloquium on "Ion Channel: Structure and Function" and gave introductory remarks), 1991.

University Service

Brigham Young University

Chair, Department of Physiology and Developmental Biology, 2012-2018

Member, University Graduate Council, 2010-2012

Member, University Academic Review Committee, 2010-2012

Associate Director, Neuroscience Center, 2005-2010

Wayne State University

Faculty Representative to the Board of Governors Student Affairs Committee, 2000.

Student Support Services Advisory Committee, 1999-2000

University Academic Senate, 1997-2000.

- Facilities and Support Services Committee, 1997-1998.
- Student Affairs Committee, 1998-2000.
- By-laws Ad hoc Committee, 1998-1999.
- **Chair**, Student Affairs Committee, 1999-2000

Supplemental Research Equipment Fund Review Committee - Life Sciences Subcommittee, 1995.

Graduate Recruitment Fair, Wayne State University, 1993.
Research and Graduate Programs Committee on Graduate Curriculum, 1992.
Research and Graduate Programs Committee on Neuroscience Curriculum, 1991.

Regional/National/International Service:

Editorial Boards:

Advances in Planar Lipid Bilayers and Liposomes (Serial), Elsevier, 2004-2011.

Journal Reviewer for:

American Journal of Physiology
Biochimica et Biophysica Acta
Biophysical Journal
Biotechnology Progress
Cell Biochemistry and Biophysics
Chemistry and Physics of Lipids
Journal of General Physiology
Journal of Biological Chemistry
Journal of Membrane Biology
Journal of Physiology
Journal of the American Chemical Society
Molecular Membrane Biology
Proceedings of the National Academy of Sciences

Grant reviews:

NIH: Special Emphasis Panel , Membrane Fusion Program Project, 2015.
Austrian Science Fund (FWF): *Ad hoc* reviewer, 2007.
NIH: Special Emphasis Panel , Membrane Fusion Program Project, 2004.
NIH: Special Emphasis Panel “SNAREs in CNS”, MDCN-7(03), 2002.
NIH: Special Emphasis Panel, “Synaptic Function”, MDCN-7(01), 2002.
NIH: *Ad hoc* reviewer, 1997.
NSF: *Ad hoc* reviewer, 1997.
NASA: *Ad hoc* reviewer for American Institute of Biological Sciences (AIBS), 1991.

Committees:

Executive committee, Exocytosis/Endocytosis Subgroup of Biophysical Society, 2005-2006
Program Chair and Meeting Organizer, Michigan Chapter, Society for Neuroscience. 1992-1993.
Co-Chairperson, Biophysical Society Meetings, session on Membrane Fusion, 1989.

7. Teaching (last five years)

A. Brigham Young University (2008-present)

1. Undergraduate Classes Taught (ongoing)

PDBio 362 (Advanced Physiology, 3CR)
PDBio 363 (Advanced Physiology Lab, 1CR)
Team taught:
PDBio 568 (30%, Biophysics, 3CR)

PDBio 601 (3 lectures, Graduate Physiology
Neuroscience 480 (2 lectures, Neurobiology, 3CR)
Neuroscience 601 (3 lectures, Grad. Neuroscience, 3 CR)

Mentored Lab Research

PDBio 450R, 494R, 495R, Neuro 449R

PDBio 450R, 495R,

2. Undergraduate research students mentored last 5 years (students that have been trained and are performing research experiments.)

2015

John Henstrom, Matt Kunz, Brayden Flake, Andrew Tyus, Chris Miller, Chris Rogers, Garrett Burgon, Bryce Talbot, Ryan Johnson, Landon Leavitt, Trey Winter, Jimmy Frazier, Russell Williams, Xane Beckstead, Matt Pitts, Curtis Nelson, Sterling Jones, Jason Paxman, Sam Zarbock, Scott Goodsell, Colby Erickson, David Calderwood, Gabriel Betancourt, Kyle Clawson, Cameron Lindemann, Kara Woodbury, Nick Crump, Sam Zenger, Josh Thomas, David Hallan, Travis Harris, Alex Kunz, Katrina Welker, Rachel Fisk, Spencer Hansen.

2014

Matt Kunz, John Henstrom, Andrew Tyus, Molly Cordy, Brayden Flake, Nathan Turnbow, Kimberly Jackson, Sam Zenger, David Hallan, Chris Miller, Ben Winter, Weston Smith, Scott Goodsell, Brady Hunt, Jason Paxman, Julie You, Coulson Huntington, NaTausha Kittler, Sam Zarbock, Bryce Parkinson, Josh Bryan, Tyler Potts, Kyle Clawson, Brian Buckner, Katrina Welker, Barrett Andreasen, Jaron Hansen, Travis Harris, James Davis, Tasha McGhie, Clark Thornton, Spencer Hansen

2013

Aaron Mayberry, Aaron McQuoid, Andrew Tyus, Anthony Holst, Brady Hunt, Brandon Wiberg, Brian Buckner, Bryce Parkinson, Caressa Hui, Clark Thornton (CJ), Clifton Hartwell, Coulson Huntington, Daniel Hofstedt, Danny Ritter, David Gabrielsen, Devan Higginbotham, Emma Morley, Evan Melville, James Cardinal, James Davis, Jaron Hansen, Jason Paxman, Jeff Kimball, Jeremy Struk, John Boswell, John Ellis, Kara Woodbury, Landon Goggins, Mike Sly, Mike Warden, NaTausha Kittler, Nathan Doyle, Nick Anderson, Omar Soriano, Paul Banks, Quinn Baker, Rose Black, Ryan Reynolds, Samuel Wagner, Sean Harvey, Shaun Miller, Stephen Richins, Travis Harris, Tyler Lee, Tyler Potts, Wesley Duke, William Carlson

2012

Bryan Adams, Brandon Wiberg, Jeff Kimball, Tyler Sax, Sean Harvey, Emma Morley, Mike Sly, Shaun Miller, James Davis, Clifton Hartwell, Caressa Hui, Tyler Potts, Devan Higginbotham, Ryan Reynolds, Dan Palaski, Landon Goggins, Mike Warden, Tyler Lee, Jeremy Struk, Coulson Huntington, Danny Ritter, Liz Flores, Kara Woodbury, Nathan Doyle, William Carlson, David Gabrielsen, Michael Oversby, Nathan Rodriguez, David Januszewski, Paul Banks, John Boswell, Daniel Hofstedt, Paul Cannon, Anthony Holst

2011

Honors Thesis Advisor/Mentor: David Lee

Undergraduate Students Mentored: Alex Doermann, Brandon Wiberg, Bryan Adams, Cory Smith, Dan Neumann, Dan Palaski, David Januszewski, David Larsen, Eric Wahlstrom, Erwin Wright, Jake Christensen, Jared Leber, Jeff Kimball, John Boswell, Kara Woodbury, Landon Goggins, Liz Flores, Lundy McKibbin, Matt

Lew, Mike Warden, Nathan Doyle, Paul Banks, Paul Cannon, Raymond O'Bryan, Reed Doxey, Scott Cochran, Sean Harvey, Stephen Grant, Steven Hansen, Tomonori Baba, Trevor Slezak, Tyler Paul, Tyler Sax, Zach Panter

2010

David Lee, Dan Neumann, Liz Flores, Reed Doxey, Tyler Paul, Kalani Au, Joel Goodman, Travis Anderson, Kevin Hyer, Cory Smith, Mark Jensen, David Larsen, Matt Bezzant, Jaime Larsen, Jared Johns, Kent Willis, Matt Lew, Andrew Bateman, Jake Christensen, Paul Cannon, Stephen Grant, Raymond O'Bryan, Jared Leber, Bryan Adams

3. Graduate students mentored

Master Thesis directed:

1. Advisor, **Alex Dabell**, Physiology and Developmental Biology Masters Student (2010-present)
2. Advisor, **Nozomi Ogawa**, Neuroscience Masters Student (2010-2012)
3. Committee member, **Sarah Motley**, Neuroscience Masters Student (2011-2013)
4. Committee member, **Hannabeth Franchino**, Physiology and Developmental Biology Masters Student (2010-2011)
5. Committee member, **Abhishek Trikha**, Neuroscience Masters Student (2008-2010)
6. Committee member, **Emily Peterson**, Physiology and Developmental Biology Masters Student (Winter 2009-2010)
7. Committee member, **David Graff**, Biochemistry Masters Student (2008-present)
8. Advisor, **Sarah Broderick**, Neuroscience Masters Student (Winter 2008-2008)
9. Committee member, **Bradley Strongin**, Physiology and Developmental Biology Masters Student (2006-2007)
10. Advisor, **Derek Martinez**, Neuroscience Masters Student (Fall 2005-Sp2007) "Palmitoylation and oxidation of the cysteine rich region of SNAP-25 and their effects on protein interactions"
11. Committee member, **Kim Baer**, Integrative Biology Masters Student (Fall 2005-2007)
12. Advisor, **J. Craig Moffat**, Physiology and Developmental Biology Masters Student (Fall 2004-2006). "Properties of conductance and inhibition of proton channels: M2 from influenza A virus and Fo from Escherichia coli ATP synthase"
13. Committee member, **Elise Barber**, Neuroscience Masters Student (Fall 2004-2006).
14. Committee member, **Mario Pinoli**, Physiology and Developmental Biology Masters Student (Fall 2004-2005).

Ph.D. Dissertations directed:

1. Committee member, **Collin Merrill**, Physiology and Developmental Biology Doctoral Student (Winter 2009-)
2. Committee member, **Catalina Matias**, Biochemistry Doctoral Student (2011-present)

3. Committee member, **Robert Hilton**, Biochemistry Doctoral Student (2007-present)
4. Committee member, **David Allison**, Neuroscience Doctoral Student (2006-2009)
5. Committee Member, **Naomi Hunsaker**, Neuroscience Doctoral Student (Fall 2005-2009)

4. Journal Club:

I help coordinate the “Membrane Biophysics Journal Club.” The club combines 4-6 faculty (Drs. Bell, Busath, Edwards, Sudweeks, Steffensen, and Woodbury) and their lab staff in a 2-4 hours/month meeting of 15-25 people. At each meeting members spend ~20 minutes each to summarize and review a current article from the scientific literature. Some students attend this meeting for credit (PDBio 449 or PDBio 549), others just attend to learn. (Winter 2003-2010)

B. Wayne State University (1990-2001):

1. Summary of Classes Taught

Undergraduate

ME 510 - Physiology for Engineers (30-50 students), 1992-1996. (15 lectures).
 IHS 310 - Basic Mechanisms of Human Disease (~200 students), 1996 (5 lectures)
 PSL 322 - Human Physiology for Undergraduates (~50 students), 1995 (3 lectures)
Co-Coordinator: ME 510 - Physiology for Engineers (30-50 students), 1993-1996

Graduate

IBS 7020 – Interdisciplinary Graduate Cell Biology (~35 students), 5 hours, 1998-2000.
 PSL 7020- Graduate Physiology Lab (4-8 students), 20 hrs, 1992-2000.
 PSL 7030 - Graduate Physiology, Acid-Base Regulation Lectures (~120 students), 2 hr, 1993, 1995-2001
 PSL 7190 - Neuroscience Survey Course (~60 students), 2 hr, 1991-2000.
 PSL 7500 - Developmental Physiology (~50 students), 5 hr, 1996-2000.
 PSL 7640 - Biology and Molecular Physiology of the Cell (~12 students), 1 hr, 1991-2001.
 PSL 7660 - Advanced Neurophysiology (~12 students), 4 hr, 1992-2000.
Special Training (Surgical Research Services) – Acid/Base Regulation (3 students). 2 hr lecture. 1998.
Course Coordinator: PSL 7020 - Graduate Physiology Lab, 1997-2000.
Co-Coordinator: PSL 7190 - Neuroscience Survey Course, 2 hr, 1991-2000.
Course Coordinator: PSL 7500 - Developmental Physiology, 1992-1999.

Medical and Professional

Post-baccalaureate Program, Cell and Renal Physiology Lectures (20 students), 24 hr, 1991-2000
 Acid-Base Regulation Lectures, Medical Physiology (250 Year I medical students), 3 hr, 1993-2001.
 Renal and Acid-Base Physiology Review (250 Year II medical students), 1 session, 1993-2001.
 Med Careers Mentoring Program (15 medical students), 1999-2001.

2. Research/Theses/Dissertations Directed

Undergraduate Research Projects Directed

1. **Nikita Plummer**, summer 2000-spring 2001
2. **Maria Crédi**, spring/summer semester, 1999.
3. **Katherine Rognlien**, spring/summer semester, 1997.
4. **Lisa Braun**, spring/summer semester, 1996.
5. **Jason Middleton**, spring/summer semester, 1995.
6. **Thomas Kraemer**, spring/summer semester, 1994.
7. **Ron Miller**, spring/summer semester, 1993.
8. **Marie Kelly**, spring/summer semester, 1992.

Master Thesis directed:

1. Advisor, **Katherine Rognlien**, physiology masters student, (1997-2001).
“Syntaxin domains necessary for fusion of both modified synaptic vesicles and synaptobrevin-doped vesicles with planar lipid membranes”
2. Committee member, **Jurek Huszczo**, basic medical science masters student. (2000-2001).
3. Committee member, **Henri Vaitkevicius**, physiology masters student. (1999-1999).
4. Committee member, **Andrew C. Hammond**, basic medical science masters student. “The effect of $[K^+]$ on the Ca^{2+} /calmodulin mediated inhibition of red cell Na^+/K -ATPase” (1999-2001).
5. Committee member, **Joshua Herskovic**, basic medical science masters student. “Ionic currents in Pericytes” (1999-2001).
6. Advisor, **Rodrigo O. Reis**, basic medical science masters student. (1998-2001).
7. Committee member, **Feng Gao**, physiology masters student. “Isolation, purification, and characterization of PLA_2 from human red cells” (1998-1999).
8. Advisor, **John J. Pomann III**, basic medical science masters student. “Design for a flexible neurophysiological data acquisition system specifically configured for monitoring skull-base surgery in an animal model” (1996-1997).
9. Committee member, **Douglas A. Crosby**, basic medical science masters student. “LDL mediated gene therapy for non-insulin dependent (type II) diabetes mellitus.” (1995).
10. Committee member, **Sung Won Choi**, basic medical science masters student. “Role of membrane bound calmodulin in Ca-dependent inhibition of the Na, K-ATPase in human red blood cells.” (1994-1995).
11. Advisor, **Stephen Alix**, basic medical science masters student. “Liposomal encapsulation of Doxorubicin in the treatment of cancer” (1994-1996)
12. Committee member, **Jing Ye-Hu**, physiology masters student. “Effects of Ca-dependent proteins on Ca-induced inhibition of the Na, K-ATPase.” (1991).

Ph.D. Dissertations directed:

1. Advisor, **Mike Franklin**, physiology graduate student,
”Calculation, comparison and modeling of single channel proton flux across reconstituted wildtype and mutant F_o of the F_1F_o ATPase from Escherichia coli” (1999-2003).

2. Advisor, **Jing Yang (Nancy) Cao**, physiology graduate student, "Characterization of reconstituted wildtype and mutant F_0 of the F_1F_0 ATPase from *Escherichia coli*" (1995-2000).
3. Committee member, **Ana Y. Estevez**, physiology graduate student, "Osmoregulatory mechanism in the *in vivo* rat cerebral cortex", (1995-1999).
4. Committee member, **Feiteng Su**, anatomy graduate student, "Expression of the plasma membrane calcium ATPase in Edinger-Westphal nerve terminals" (1997-1998)
5. Committee member (minor advisor), **C. M. Ellen Taft**, School of Nursing doctoral student with a minor in Physiology, (1996-1997)
6. Committee member, **Douglas J. Gould**, anatomy graduate student, "Glial changes in the phrenic nucleus following superimposed central and peripheral nervous system injuries", (1996-1997)
7. Committee member, **Yanxiang Chen**, biochemistry graduate student, "Mechanisms of arsenical resistance in *Escherichia coli*: the roles of *arsD* and *arsB* in metalloregulation and transport of arsenite", (1993-1997).
8. Advisor, **Marie Kelly**, physiology graduate student, "Ion channels from cholinergic synaptic vesicle membranes reconstituted into bilayers" (1992-1997).
9. Committee member, **Jess Lucas**, physiology graduate student, "Identification of Thrombospondin-binding proteins from human platelets: The interaction of Thrombospondin with platelet myosin" (1992-1996).
10. Committee member, **Randy A. Schemidt**, biochemistry graduate student, "Assembly and function of the *Escherichia Coli* F_1F_0 ATPase β and c subunits", (1994-1995).
11. Committee member, **Mansim Okafor**, physiology graduate student, "The role of sodium and phospholipase A2 in calcium/calmodulin inhibition of the Na,K-ATPase of human red blood cells", (1993-1995).
12. Committee member, **Michelle Petrak**, physiology graduate student. "Structure-function analysis of bacteriorhodopsin and related pigments of *Halobacterium halobium*" (awarded 1994).
13. Committee member, **Paul Standley**, physiology graduate student, "Insulin attenuation of intracellular calcium responses in vascular smooth muscle cells", (awarded 1992).
14. Committee member, **Cynthia Ann Janusz**, physiology graduate student. "Electrophysiological analysis of the modulatory actions of adenosine on hippocampal CA3 pyramidal neurons: Evidence of anticonvulsant properties in an in-vitro model of epilepsy" (awarded 1992).

Postgraduate Research directed:

1. **Aparajita Ghosh**, Ph.D. (1998-1999)
2. Sue **Kanchana**, Ph.D. (also a Year II Medical Student), (1995-1996).

8. Scholarship

Publications (excluding abstracts):

Original observations in refereed journal

1. McNally, J. M., E. E. Custer, S. Ortiz-Miranda, **D. J. Woodbury**, S. D. Kraner, B. M. Salzberg, and J. R. Lemos. 2014. Functional ryanodine receptors in the membranes of neurohypophysial secretory granules. *J Gen Physiol.* 143:693-702.
2. Ogawa N, Taylor RM, **Woodbury DJ**, and Prince JT. 2013. Resolving Double Disulfide Bond Patterns in SNAP25B Using Liquid Chromatography-Ion Trap Mass Spectrometry. *J. Mass Spectrometry.* **48**:660-668.
3. Lee, D. E. , M. G. Lew, and **D. J. Woodbury**. 2013. Vesicle Fusion to Planar Membranes is enhanced by Cholesterol and Low Temperature. *Chemistry and Physics of Lipids.* 166:45-54.
4. **Woodbury, D. J.**, C. A. Rees, A. Thompson, P. Meiners, and A. Adams. 2011. An Assay to Quantitate Reducible Cysteines from Nanograms of GST-Fusion Proteins. *Analytical Biochemistry* 417:165-173.
5. Bock, L.V., B. Hutchings, H. Grubmüller, and **D. J. Woodbury**. 2010. Chemomechanical regulation of SNARE proteins studied with molecular dynamics simulations. *Biophysical J.* 99:1221-1230.
6. Moffat, J. C., V. Vijayvergiya, F. P. Gao, T. A. Cross, **D. J. Woodbury**, and D. Busath. 2008. Proton Transport through Influenza A Virus M2 Protein Reconstituted in Vesicles. *Biophysical J.* **94**:434-445.
7. Richardson, E. S., W. G. Pitt, **D. J. Woodbury**. 2007. The role of cavitation in liposome formation. *Biophysical J.* **93**:4100-4107.
8. Wilson-Ashworth, H. A., Q. Bahm, J. Erickson, A. Shinkle, M. P. Vu, **D. J. Woodbury**, and J. D. Bell. 2006. Differential Detection of Phospholipid Fluidity, Order, and Spacing by Fluorescence Spectroscopy of Bis-pyrene, Prodan, Nystatin, and Merocyanine 540. *Biophysical J.* **91**:4091-4101.
9. Helrich, C. S., J. A. Schmucker, and **D. J. Woodbury**. 2006. Evidence that nystatin channels form at the boundary, not the interior of lipid domains. *Biophysical J.* **91**:1116-1127.
10. **Woodbury, D. J.**, E. S. Richardson, A. W. Grigg, R. D. Welling, and B. H. Knudson. 2006. Reducing liposome size with ultrasound: Bimodal size distributions. *J. Liposome Research* **16**:57-80.
11. Franklin, M. J., **D. J. Woodbury**, and W. S. A. Brusilow. 2004. Determination of Single Channel Proton Flux at pH 6.8 through F₀ from *Escherichia coli*. *Biophysical J.* **87**:3594-3599.
12. McNally, J.M., **D.J. Woodbury** and J.R. Lemos. 2004. Syntax in 1A drives fusion of large dense core neurosecretory granules into a planar lipid bilayer. *Cell Biochemistry and Biophysics* **41**:11-24.
13. Cao, N. J., W. S. A. Brusilow, J. J. Tomashek and **D. J. Woodbury**. 2001. Characterization of reconstituted F₀ from wildtype *Escherichia coli* and identification of two other fluxes co-purifying with F₀. *Cell Biochemistry and Biophysics* **34**:305-320.

14. **Woodbury, D. J.**, and K. Rognlien. 2000. The t-SNARE Syntaxin is sufficient for spontaneous fusion of synaptic vesicles to planar membranes. *Cell Biology International*. **24**:809-818.
 15. Rossi, N. F., D. S. O'Leary, **D. J. Woodbury**, and H. Chen. 2000. Endothelin-1 in hypertension in the baroreflex intact SHR: a role independent from vasopressin release. *Am. J. Physiol. (Endo)*. **279**:E18-E24.
 16. **Woodbury, D. J.** 1999. Building a bilayer model of the neuromuscular synapse. *Cell Biochemistry and Biophysics*. **30**(3):303-329.
 17. Scislo, T. J., R. A. Augustyniak, R. A. Barraco, **D. J. Woodbury**, and D. S. O'Leary. 1997. Activation of P_{2x}-purinoceptors in the nucleus tractus solitarius elicits differential inhibition of lumbar and renal sympathetic nerve activity. *J. Autonom. Nerv. Sys.* **62**:103-110.
 18. Alix, S. N., and **D. J. Woodbury**. 1997. Phospholipase A2 action on planar lipid bilayers generates a transient, voltage-independent current. *Biophysical J.* **72**:247-253.
 19. Fujii, J. T., F. T. Su, **D. J. Woodbury**, M. Kurpakus, X-J. Hu, and R. Pourcho. 1996. Plasma membrane calcium ATPase in synaptic terminals of chick Edinger-Westphal neurons. *Brain Res.* **734**:193-202.
 20. O'Leary, D. S., and **D. J. Woodbury**. 1996. Role of cardiac output and peripheral resistance in spontaneous changes of arterial pressure. *Am. J. Physiol.* **271**:R641-R646.
 21. Kelly, M. L., and **D. J. Woodbury**. 1996. Ion channels from cholinergic synaptic vesicle fragments reconstituted into lipid bilayers. *Biophysical J.* **70**:2593-2599.
 22. Brown, R. A., M. M. Lee, A. M. Sundareson, **D. J. Woodbury**, and A. O. Savage. 1996. Influence of calcium channel blocker treatment on the mechanical properties of diabetic rat myocardium. *Acta Diabetologia*. **33**:7-14.
 23. O'Regan, M. H., S. Alix, and **D. J. Woodbury**. 1996. Phospholipase A2 causes rupture of planar lipid bilayers. *Neuroscience Letters*. **202**:201-203.
- (Note: the following article also reviewed the literature, so is listed under reviews.)
- Woodbury, D. J.** 1995. Evaluation of the evidence for ion channels in synaptic vesicles (review). *Molecular Membrane Biology*. **12**:165-171.
24. **Woodbury, D. J.**, and M. Kelly. 1994. Release of ATP from cholinergic synaptic vesicles during freeze-thaw cycling. *Cryobiology*. **31**:279-289.
 25. **Woodbury, D. J.** 1990. Vesicle-membrane fusion detected by simultaneous electrical and optical measurements. *Proceedings of the Twelfth Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, **12**(4):1747-1748.
 26. **Woodbury, D. J.**, and C. Miller. 1990. Nystatin-induced liposome fusion: A versatile approach to ion channel reconstitution into planar bilayers. *Biophysical J.* **58**:833-839.
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 28. **Woodbury, D. J.**, and J. E. Hall. 1988. Role of channels in the fusion of vesicles with a planar bilayer. *Biophys. J.* **54**:1053-1063.

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30. **Woodbury, D. J.** 1986. Fusion of vesicles with planar bilayers: membrane fusion and content release. Ph.D. dissertation. University of California, Irvine.
31. Haigler, H. T., **D. J. Woodbury**, and E. S. Kempner. 1985. Radiation inactivation of ricin occurs with transfer of destructive energy across a disulfide bond. *Proc. Natl. Acad. Sci. USA.* **82**:5357-5359.

Review articles

32. Snyder, D. A., M. L. Kelly, and **D. J. Woodbury**. 2006. SNARE complex regulation by phosphorylation (review). *Cell Biochemistry and Biophysics* 45:111-123.
33. **Woodbury, D. J.** 1995. Evaluation of the evidence for ion channels in synaptic vesicles (review). *Molecular Membrane Biology.* **12**:165-171.

Books and chapters

34. Lemos, J. R., J. McNally, E. Custer, A. Cuadra, H. Marrero, and **D. Woodbury**, 2014. Isolated Neurohypophyseal Terminals: Model for Depolarization-Secretion Coupling. Chapter 10 in "Exocytosis Methods", Neuromethods Vol. 83:191-220.
35. **Woodbury, D. J.**, J. M. McNally, J. R. Lemos. 2007. SNARE-induced fusion of vesicles to a Planar Bilayer. Chapter 10 in "Advances in planar lipid bilayers and liposomes", edited by A. Leitmannova-Liu. (Elsevier) Vol. 5:285-311.
36. Kelly, M. L. and **D. J. Woodbury**. 2003. Advantages and disadvantages of patch clamping versus using BLM. Chapter 25 in "Planar Lipid Bilayers (BLMs) and their Applications", edited by Peter Thorn. Membrane Science and Technology Series (Elsevier) Vol. 7: 699-721.
37. Rognlien, K. T. and **D. J. Woodbury**. 2003. Reconstituting SNARE proteins into BLMs. Chapter 16 in "Planar Lipid Bilayers (BLMs) and their Applications", edited by H. T. Tien and A. Ottova-Leitmannova. Membrane Science and Technology Series (Elsevier) Vol. 7: 479-488.
38. **Woodbury, D. J.** 1999. Nystatin/Ergosterol method for reconstituting ion channels into planar lipid bilayers. in Methods in Enzymology. Ion Channels Part C, P. Michael Conn, Editor, **294**(17):319-339.

Published Letters, Notes and Discussions

39. **Woodbury, D. J.** 2013. Is it Zippered? Does it Flare? That Darn Complexin Clamping SNARE. *Biophysical J.* **105**:835-836.
40. Busath, D, **D. J. Woodbury**, A. Frost. 2012. Endosis and exosis: New names for fusion and budding. *J. Memb. Biol.* **245**:759-760.
41. **Woodbury, D. J.** 1993. Making synaptic vesicles fuse with lipid bilayers. *Biophysical J.* **65**:973-974.

Abstracts Published (Following Presentation at National Meetings - last five years only):

- Dixon J. Woodbury, Nathan S. Doyle, Nozomi Ogawa, Ryan M. Taylor, John T. Prince. 2013. In vitro oxidation leads to double disulfide bond formation and protein destabilization in SNAP-25. *Biophys. J. Supplement*.
- José R. Lemos, James McNally, Cristina Velazquez-Marrero, Edward Custer, Brian Salzberg, Dixon J. Woodbury, Sonia Ortiz-Miranda. 2013. Role of intracellular calcium in release from nerve terminals. *Biophys. J.* 104:11a (Supplement).
- Dixon J. Woodbury. 2012. Vesicle-membrane fusion is enhanced by cholesterol and low temperature. *Biophys. J. Supplement*
- Dixon J. Woodbury, David E. Lee, Matthew G. Lew. 2011. Cholesterol and low temperature enhance fusion of vesicles to a planar bilayer. *Am. Soc. Cell. Biol. Meetings*
- Nozomi Ogawa, Alex DaBell, Dixon J. Woodbury. 2011. Oxidation and Palmitoylation of SNAP-25. *Biophys. J. Supplement* 2208-Pos
- David E. Lee, Matthew G. Lew, Reed A. Doxey, Dixon J. Woodbury. 2011. Cholesterol and low temperature enhance fusion of vesicles to a planar bilayer. *Biophys. J. Supplement* 3432-Pos
- Kevin J. Tuttle, David E. Lee, Reed A. Doxey, Dixon J. Woodbury. 2010. Decreasing temperature below T_t or increasing cholesterol enhance vesicle-bilayer membrane fusion. *Biophys. J.* 98(3) pp. 672a
- April Adams, Liz C. Flores, and Dixon J. Woodbury. 2010. Detection of oxidation and palmitoylation in SNARE proteins. *Biophys. J.* 98(3) pp. 631a - 632a
- Lars Bock, Brian Hutchings, Helmut Grubmüller, Dixon J. Woodbury. 2010. Chemomechanical regulation of SNARE proteins studied with molecular dynamics simulations. *Biophys. J.* 98(3) pp. 677a.
- D.J. Woodbury, C.A. Rees, A.M. Thompson, P.M. Meiners, J.S. Bluth. 2009. A nano-assay to measure modification of cysteine residues in GST-fusion proteins. *Biophys. J.* 96(3) pp. 48a - 49a.
- Brandon E. Forbes, Nathan C. La Monica, Gary R. Edwards, Dixon J. Woodbury. 2009. Evidence for: a role for SNAP-25 as a v-SNARE in vitro (and cholesterol enhanced SNARE fusion). *Biophys. J.* 96(3) pp. 100a
- Dixon J. Woodbury, Chris A. Rees, Brandon E. Forbes, Ammon M. Thompson, Nathan La Monica, Lama Tarayrah, John R. Lovell. 2008. SNAP-25: Palmitoylation and membrane interactions. *Biophysical Society Meeting Abstracts. Biophys. J. Supplement* 1883-Plat.
- Carl S. Helrich, Kathy A. Steiner, Rebecca K. Friesen, Erwin Sucipto, Dixon J. Woodbury. 2008. Experimental And Monte Carlo Investigations Of Nystatin Channel Current Decay And Sterol Mosaics In Mixed Lipid/Ergosterol Domains At Moderate Ergosterol Mol Fraction. *Biophysical Society Meeting Abstracts. Biophys. J. Supplement* 384-pos.
- James M. McNally, Dixon J. Woodbury, José R. Lemos. 2008. Spontaneous Fusion of Chromaffin Dense Core Granules to a Lipid Bilayer Detected by Amperometry. *Biophysical Society Meeting Abstracts. Biophys. J. Supplement* 1266-pos.

Scholarly Presentations

International/National Meetings:

- Biophysical Society, Exo/Endo Subgroup Meetings. Feb. 2012 (invited presentation) “Fusion to Planar Membranes is enhanced by Cholesterol and Low Temperature” (San Diego, CA)
- Biophysical Society Meetings. Feb. 2008 (invited presentation) “SNAP-25: Palmitoylation and membrane interactions” (Long Beach, Ca)
- Membrane Biophysics of Fusion, Fission, and Rafts in Health and Disease, Sept 2007 (invited presentation) “SNAP-25: Palmitoylation and membrane interactions” (Woods Hole, MA)
- American Chemical Society, 2006 (invited presentation). “Membrane interactions with nystatin and SNAP-25” (San Francisco, CA).
- American Society for Cell Biology, 1999 (invited presentation). "UnSNAPping exocytosis: Synaptic vesicles fuse to membranes containing just syntaxin" (Washington, D.C.)
- 2nd International Workshop on ATP-Synthase and V-ATPase, 1998 (invited poster). Woodbury, D. J., N. J. Cao, and W. S. A. Brusilow. "Identification of a DCCD-insensitive proton conductance in Fo prepared from E. coli." (Osnabrück, Germany).
- IEEE/EMBS Meetings, 1990 (invited presentation). "Vesicle-membrane fusion detected by simultaneous electrical and optical measurements." (Philadelphia, Pennsylvania)

Invited Seminars (last six years only):

- University of Utah, Department of Physics and Astronomy. Salt Lake City, Utah. “Cholesterol and Alcohol alter membrane structure and fusion of vesicles to membranes” (January 14, 2016)
- **Max-Planck-Institute for Biophysical Chemistry.** Göttingen Germany “Modulation of Exocytosis by Cholesterol, Alcohol and Oxidation” (Dec. 19, 2014).
- **VU University Amsterdam Medical Center,** Amsterdam Netherlands “Modulation of Exocytosis by Cholesterol, Alcohol and Oxidation” (Dec. 12, 2014).
- Brigham Young University, Department of Physics and Astronomy. Provo, Utah. “Looking at some fundamentals of life – or - How does a Biophysicist study Physiology?” (January 24, 2012)
- Brigham Young University, Department of Physiology and Developmental Biology. Provo, Utah. (April 9, 2009)
- **University of Göttingen, Physics Department.** Göttingen Germany (Nov. 11, 2008)
- **Max-Planck-Institute for Biophysical Chemistry.** Göttingen Germany (Sept 2, 2008)
- Brigham Young University, Department of Physiology and Developmental Biology. Provo, Utah. (March. 27, 2008)
- Wayne State University, Department of Physiology. Detroit, Michigan (March. 13, 2008)

9. Professional development activities and dates (past 6 years)

Semester Sabbatical in Germany. Worked with Dr. Reinhard Jahn at the Max-Planck Institute for Biophysical Chemistry (Göttingen, Germany) learning three techniques: Mass Spectroscopy, Circular Dichroism, and Molecular Modeling. August 19-December 28, 2008.

10. Funded/pending Grants during past 10 years (current grants in bold)

BYU Mentoring Environments Grant, \$20,000 direct costs. Principal investigator: D. J. Woodbury. Funded: 2012.

BYU Mentoring Environments Grant, \$20,000 direct costs. Principal investigator: D. J. Woodbury. Funded: 2010.

NIH, R01 competitive renewal, "Biophysical characterization of the SNARE protein SNAP-25 and its interactions with membranes" Total cost: \$450,000 (\$300,000 direct) over 3 years. Principal investigator: D. J. Woodbury. Not funded 2008.

BYU Mentoring Environments Grant, \$19,000 direct costs. Principal investigator: D. J. Woodbury. Funded: 2008.

BYU Mentoring Environments Grant, \$20,000 direct costs. Principal investigator: D. J. Woodbury. Funded: 2007.

BYU Mentoring Environments Grant, \$19,000 direct costs. Principal investigator: D. J. Woodbury. Funded: 2006.

BYU Graduate Mentoring Award, \$4000. D. J. Woodbury and Derek Martinez. Funded: 2006.

BYU Mentoring Environments Grant, \$19,600 direct costs. Principal investigator: D. J. Woodbury. Funded: 2004.

BYU Mentoring Environments Grant, \$16,660 direct costs. Principal investigator: D. J. Woodbury. Funded: 2003.

BYU Mentoring Environments Grant, \$21,000 direct costs. Principal investigator: D. J. Woodbury. Funded: 2002.

NIH, R01 revised, "Assembly and Conductance of F_O sector of E. coli H⁺-ATPase" \$881,619 over 4 years. Principal investigator: W. S. Brusilow. Co-investigator: D. J. Woodbury. Funded: 2001-2005

NIH, R01 revised, "Molecular reconstitution of neurotransmitter release" Total cost: \$1,139,000 (\$900,000 direct) over 5 years. Principal investigator: D. J. Woodbury. Funded: 2000-2005, 2006. (1 year continuation).

WSU Bridge Support. Principal investigator: D. J. Woodbury. "Molecular reconstitution of neurotransmitter release" \$25,200. Funded: 1998-2000.

Providence Hospital and WSU Interdisciplinary Research Seed Fund, "Effects of electromagnetic fields (EMF) on mammary cancer induction and growth." \$32,400 over 2 years. Principal investigators: D. Lawson and D. J. Woodbury. Funded: 1995-1997.

NIH, FIRST Award (revised from original ADAMHA FIRST), "Ion Channels from Synaptic Vesicle Membrane" \$502,545 over 5 years. Principal investigator: D. J. Woodbury. Funded: 1993-1998, 1999 (1 year continuation).

11. Miscellaneous Activities

Patents/Copyrights

Copyright on software for “General computer control and measurement of electrophysiology experiments.” Inventor: D. J. Woodbury, Copyright holder: WSU. 1995

Professional consultation

Design, development and marketing of biomedical software for which WSU and Dr. Woodbury hold copyright. Biotech Products (Greenwood, IN). 1995-1999

CURRICULUM VITAE

Stephen L. Wood

Sources:

Bright, D.E. Steven Lane Wood. *Zoo Keys* 56:7-16,
2010 <http://zookeys.pensoft.net/articles.php?id=2288>

Stephen Lane Wood, 1924-2009: Obituary. *Western North American Naturalist* 69:563-564, 2009

BYU Catalogs and Class Schedules: <https://lib.byu.edu/collections/byu-history/>

Birth: Providence, Utah, July 2, 1924

Death: Provo, Utah, July 1, 2009

Education:

B.S., Entomology, Utah State University, 1946
M.S., Entomology, Utah State University, 1948
PhD, University of Kansas, 1953

Employment:

Research Aide for Utah Experiment Station 1941-50
Science Teacher, Beaver County High School, Beaver, Utah, 1948-1950
Canadian National Collection of Insects, Ottawa, Ontario, 1953-1956
Department of Zoology and Entomology and Department of Zoology, Brigham Young University, 1956-1989

Service:

Editor Great Basin Naturalist, 1971-1989 <https://ojs.lib.byu.edu/spc/index.php/wnan/issue/view/2153>
Member Committee to Plan the Monte L. Bean Life Science Museum
Curator of the Coleoptera Collection in the Bean Museum
Visiting Research Professor of Entomology at Universities in San Jose, Costa Rica and in Merida, Venezuela.

Teaching:

Zoological Literature
Insect Classification
Immature Insects
Animal Biology

Publications :

- 1) Wood SL. The Scolytidae of the Logan Canyon area of Utah and their host plants. *Utah Academy of Sciences, Arts and Letters* 26: 127–128, 1951.
- 2) Wood SL. Two new species and a new genus of Scolytidae (Coleoptera) from Utah. *Journal of the Kansas Entomological Society* 24: 31–32, 1951.
- 3) Wood SL. Observations of the homologies of the copulatory apparatus in male Coleoptera. *Annals of the Entomological Society of America* 45: 613–617, 1952.
- 4) Wood SL. A revision of North American *Cryphalini* (Scolytidae: Coleoptera). *University of Kansas Science Bulletin* 36: 959–1090, 1954.
- 5) Wood SL. Bark beetles of the genus *Carphoborus* Eichhoff (Coleoptera: Scolytidae) in North America. *The Canadian Entomologist* 86: 502–526, 1954.
- 6) Wood SL. New species of bark beetles (Coleoptera: Scolytidae), mostly Mexican, Part I. *The Canadian Entomologist* 88: 141–154, 1956.
- 7) Wood SL. New species of bark beetles (Coleoptera: Scolytidae), mostly Mexican, Part II. *The Canadian Entomologist* 88: 231–240, 1956.
- 8) Wood SL. New species of bark beetles (Coleoptera: Scolytidae), mostly Mexican, Part III. *The Canadian Entomologist* 88: 247–258, 1956.
- 9) Wood SL. The North American allies of *Hylobius piceus* (De Geer) (Coleoptera: Curculionidae). *The Canadian Entomologist* 89: 37–43, 1957.
- 10) Wood SL. Ambrosia beetles of the tribe Xyloterini (Coleoptera: Scolytidae) in North America. *The Canadian Entomologist* 89: 337–354, 1957.
- 11) Wood SL. Distributional notes on and synonymies of some North American Scolytidae (Coleoptera). *The Canadian Entomologist* 89: 396–403, 1957.
- 12) Wood SL. Results from the Danish expedition to the French Cameroons 1949–50. XXIII. Coleoptera: Platypodidae and Scolytidae. *Bulletin Institut français d'Afrique Noire* 19: 1272–1273, 1957.
- 13) Wood SL. A new generic name for and some biological data on an unusual Central American beetle (Coleoptera: Platypodidae). *Great Basin Naturalist* 17: 103–104, 1957.
- 14) Wood SL. New species of bark beetles (Coleoptera: Scolytidae), mostly Mexican, Part IV. *Great Basin Naturalist* 17: 105–110, 1957.
- 15) Wood SL. Some virtually unknown North American Platypodidae (Coleoptera). *Great Basin Naturalist* 18: 37–40, 1958.
- 16) Wood SL. Bark Beetles of the genus *Pityoborus* Blackman (Coleoptera: Scolytidae). *Great Basin Naturalist* 18: 46–56, 1958.
- 17) Wood SL. New species of bark beetles (Coleoptera: Scolytidae), mostly Mexican, Part V. *Great Basin Naturalist* 19: 1–7, 1959.
- 18) Wood SL. New records and species of Arizona bark beetles (Coleoptera: Scolytidae). *Great Basin Naturalist* 19: 57–62, 1959.
- 19) Wood SL. Coleoptera: Platypodidae and Scolytidae. *Insects of Micronesia* 18(1): 1–73, 1960.
- 20) Wood SL. New records and species of Scolytidae (Coleoptera) from western North America. *Great Basin Naturalist* 20: 59–69, 1960.
- 21) Wood SL. A key to the North American genera of Scolytidae. *The Coleopterists Bulletin* 15: 41–48, 1961.
- 22) Wood SL. An alternate proposal to the suggested validation of *Myelophilus* Eichhoff, 1878. (Insecta: Coleoptera). *Bulletin of Zoological Nomenclature* 18(5): 319–321, 1961.
- 23) Wood SL. New records and species of Scolytidae (Coleoptera) from Colombia. *Great Basin Naturalist* 21: 1–7, 1961.

- 24) Wood SL. A new *Dactylipalpus* (Coleoptera: Scolytidae) from the Philippine Islands. *Great Basin Naturalist* 21: 8–9, 1961.
- 25) Wood SL. New species of bark beetles (Coleoptera: Scolytidae) mostly Mexican, Part VI. *Great Basin Naturalist* 21: 87–107, 1961.
- 26) Wood SL. Miscellaneous taxonomic notes on Scolytidae (Coleoptera). *Great Basin Naturalist* 22: 76–82, 1962.
- 27) Wood SL. A revision of the bark beetle genus *Dendroctonus* Erichson (Coleoptera: Scolytidae). *Great Basin Naturalist* 23: 1–117, 1963.
- 28) Wood SL. New species of North American *Pityophthorus* Eichhoff (Coleoptera: Scolytidae). *Great Basin Naturalist* 24: 59–70, 1964.
- 29) Wood SL. The genus *Eupagiocerus* Blandford (Scolytidae: Coleoptera). *Great Basin Naturalist* 25: 31–35, 1965.
- 30) Wood SL. New synonymy in the Platypodidae and Scolytidae (Coleoptera). *Great Basin Naturalist* 26: 17–33, 1966.
- 31) Wood SL. New records and species of neotropical Platypodidae (Coleoptera). *Great Basin Naturalist* 26: 45–70, 1966.
- 32) Wood SL. *Cryphalus* Erichson, 1836 (Insecta: Coleoptera): proposed designation of a type-species under the plenary powers. *Bulletin of Zoological Nomenclature* 24: 121–122, 1967.
- 33) Wood SL. New species of bark beetles (Coleoptera: Scolytidae), mostly Mexican. Part VII. *Great Basin Naturalist* 27: 37–57, 1967.
- 34) Wood SL. New records and species of neotropical bark beetles (Scolytidae: Coleoptera). *Great Basin Naturalist* 27: 79–97, 1967.
- 35) Wood SL. New records and species of neotropical bark beetles (Scolytidae: Coleoptera). Part II. *Great Basin Naturalist*. 27: 119–141, 1967.
- 36) Wood SL. New records and species of neotropical bark beetles (Scolytidae: Coleoptera). Part III. *Great Basin Naturalist* 28: 1–15, 1968.
- 37) Wood SL. A key to the species of the genus *Cnesinus* LeConte (Coleoptera: Scolytidae) of North and Central America. *Great Basin Naturalist* 28: 88–110, 1968.
- 38) Wood SL. New records and species of neotropical bark beetles (Scolytidae: Coleoptera). Part IV. *Brigham Young University Science Bulletin, Biological Series* 10(2). 46 pp., 1969.
- 39) Wood SL. Additions to the horned bark beetle genus *Cactopinus* Schwarz (Scolytidae). *The Coleopterists Bulletin* 23: 42–51, 1969.
- 40) Wood SL. New synonymy and records of Platypodidae and Scolytidae (Coleoptera). *Great Basin Naturalist* 29: 113–128, 1969.
- 41) Wood SL. New records and species of neotropical bark beetles (Scolytidae: Coleoptera). Part V. *Brigham Young University Science Bulletin, Biological Series* 15(3). 54 pp., 1971.
- 42) Wood SL. New species of bark beetles (Scolytidae: Coleoptera) from western North America. *Great Basin Naturalist* 31: 69–76, 1972.
- 43) Wood SL. New records and species of American Platypodidae (Coleoptera). *Great Basin Naturalist* 31: 243–253, 1972.
- 44) Wood SL. Family Scolytidae (Ipidae). In: M. H. Hatch, The beetles of the Pacific Northwest, Part 5. *University of Washington, Publications in Biology* 16, 395–428, 1972.
- 45) Wood SL. New synonymy in American bark beetles (Scolytidae: Coleoptera). *Great Basin Naturalist* 31: 140–152, 1972.
- 46) Wood SL. New synonymy in American bark beetles (Scolytidae: Coleoptera). Part II. *Great Basin Naturalist* 32: 190–201, 1972.
- 47) Wood SL. New synonymy in the bark beetle tribe Cryphalini (Coleoptera: Scolytidae). *Great Basin Naturalist* 32: 40–54, 1972.

- 48) Wood SL. Notes on the classification of the tribe Scolytini (Coleoptera: Scolytidae). *Bulletin of Entomological Research* 62: 243–246, 1972.
- 49) Wood SL. Review of K. E. Schedl, Monographie der familie Platypodidae Coleoptera. *Science* 178: 1085–1086, 1972.
- 50) Wood SL. A correction in the taxonomic identity of *Platypus parallelus* (Fabricius) (Coleoptera: Platypodidae). The *Coleopterists Bulletin* 27: 51–52, 1973.
- 51) Wood SL. On the taxonomic status of Platypodidae and Scolytidae (Coleoptera). *Great Basin Naturalist* 33: 77–90, 1973.
- 52) Wood SL. New synonymy in American bark beetles (Scolytidae: Coleoptera). Part III. *Great Basin Naturalist* 33: 169–188, 1973.
- 53) Wood SL. New species of American Microcorthylus (Coleoptera: Scolytidae). *Great Basin Naturalist* 33: 265–275, 1973.
- 54) Wood SL. New species of American bark beetles (Coleoptera: Scolytidae). *Brigham Young University Science Bulletin, Biological Series* 19. 67 pp., 1974.
- 55) Wood SL. New species of American Corthylini (Coleoptera: Scolytidae). *Great Basin Naturalist* 34: 135–150, 1974.
- 56) Wood SL. New species of American Corthylus (Coleoptera: Scolytidae). *Great Basin Naturalist* 34: 181–202, 1974.
- 57) Wood SL. Proposed conservation under the plenary powers of the name *Phloeotribus* Latreille, 1804 (Insecta: Coleoptera, Scolytidae). *Bulletin of Zoological Nomenclature* 31: 122–123, 1974.
- 58) Wood SL. Proposed conservation under the plenary powers of the name *Liparthrum* Wollaston, 1864 (Insecta: Coleoptera, Scolytidae). *Bulletin of Zoological Nomenclature* 31: 234–235, 1974.
- 59) Wood SL. 74) Proposed conservation under the plenary powers of the name *Phloeosinus* Chapuis, 1869 (Insecta: Coleoptera, Scolytidae). *Bulletin of Zoological Nomenclature* 31: 236–237, 1974.
- 60) Wood SL. Proposed conservation under the plenary powers of the name *Xyleborus* Eichhoff, 1864 (Insecta: Coleoptera, Scolytidae). *Bulletin of Zoological Nomenclature* 31: 230–231, 1974.
- 61) Wood SL. Proposed conservation under the plenary powers of the name *Dryocoetes* Eichhoff, 1864 (Insecta: Coleoptera, Scolytidae). *Bulletin of Zoological Nomenclature* 31: 232–233, 1974.
- 62) Wood SL. New synonymy and records of American bark beetles (Coleoptera: Scolytidae). *Great Basin Naturalist* 34: 277–290, 1974.
- 63) Wood SL. New synonymy and new species of American bark beetles (Coleoptera: Scolytidae). *Great Basin Naturalist* 35: 21–32, 1975.
- 64) Wood SL. New synonymy and new species of American bark beetles (Coleoptera: Scolytidae, Part II. *Great Basin Naturalist* 35: 391–401, 1975.
- 65) Wood SL. Proposed conservation under the plenary powers of the name *Phloeotribus* Latreille, 1804 (Insecta: Coleoptera, Scolytidae). *Bulletin of Zoological Nomenclature* 32: 122–123, 1975.
- 66) Wood SL. Reply to comments on the proposal to conserve *Liparthrum* Wollaston, 1864 (Coleoptera: Scolytidae). *Bulletin of Zoological Nomenclature* 33: 4pp. , 1976.
- 67) Wood SL. New synonymy and new species of American bark beetles (Coleoptera: Scolytidae), Part III. *Great Basin Naturalist* 35: 347–355, 1976.
- 68) Wood SL. Introduced and exported American Scolytidae (Coleoptera). *Great Basin Naturalist* 37: 57–74, 1977.
- 69) Wood SL. New synonymy and new species of American bark beetles (Coleoptera: Scolytidae), Part IV. *Great Basin Naturalist* 37: 207–220, 1977.
- 70) Wood SL. New synonymy and new species of American bark beetles (Coleoptera: Scolytidae), Part V. *Great Basin Naturalist* 37: 383–394, 1977.
- 71) Wood SL. New synonymy and new species of American bark beetles (Coleoptera: Scolytidae), Part VI. *Great Basin Naturalist* 37: 511–522, 1977.

- 72) Wood SL. A reclassification of the subfamilies and tribes of Scolytidae (Coleoptera). *Annales of the Societe Entomologique de France* 14: 95–122, 1978.
- 73) Wood SL. New synonymy and new species of American bark beetles (Coleoptera: Scolytidae), Part VII. *Great Basin Naturalist* 38: 397–405, 1978.
- 74) Wood SL. A catalog of the Coleoptera of America north of Mexico: Family Platypodidae. *U.S. Department of Agriculture, Agriculture Handbook* 529–141. 5 pp, 1979.
- 75) Wood SL. New synonymy and new species of American bark beetles (Coleoptera: Scolytidae), Part VIII. *Great Basin Naturalist* 39: 133–142, 1979.
- 76) Wood SL. New genera and new generic synonymy in Scolytidae (Coleoptera). *Great Basin Naturalist* 40: 89–97, 1980.
- 77) Wood SL. New American bark beetles (Coleoptera: Scolytidae), with two recently introduced species. *Great Basin Naturalist* 40: 353–358, 1980.
- 78) Wood SL. Los Scolytidae de Mexico. In: Primer simposio nacional sobre parasitologia forestal, 18–19 de Febrero de 1980, Uruapan, Michoacan, Mexico. *Memoria Sociedad Mexicana de Entomologia*, 13–57, 1980.
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CURRICULUM VITAE

Bruce H. Woolley

Sources:

Pub Med

Search on BYU Website for Bruce H. Woolley

<http://ismagazine.byu.edu/Issues/Fall-2008/profiles>

<http://www.zoominfo.com/p/Bruce-Woolley/4293352>

World Cat: <http://www.worldcat.org/identities/lccn-n79-6340/>

<http://brucewoolley.com/homepage.html>

Education:

BS, University of Utah, 1965

PharmD, University of Southern California, 1972

Employment:

Director, Brigham Young University Student Health Center, 1977-

Faculty Member, Department of Food Science and Nutrition, Brigham Young University, 1977-2002

Faculty Member, Department of Physiology and Developmental Biology, 2002-2008

Teaching:

Physiology of Drug Mechanisms

Parasitology

Science of Biology

Human Physiology

Clinical Pharmacology

Herbal Pharmacology

Advanced Sports Nutrition

Sports and Exercise Pharmacology

Psychopharmacology

Sharing the Gospel

Doctrine and Covenants

Administrative Assignments:

Editor-in-Chief and Publisher, Journal of Collegium Aesculapium, 1982-present

Director, Student Health Center, Brigham Young University

Executive Committee Member, LDS Church Medical Advisory Committee
Director, Drug Abuse Prevention and Education Office, Brigham Young University
Vice-Chairman of the Board of Trustees of the University of Southern Nevada
Established the CUNORI College of Medicine and Surgery in Guatemala
Board Member, Utah Pharmaceutical Association
Board Member, Utah Pharmacy Association
Medical Advisor, Bodysentials Health & Beauty Inc
Board Member, Roseman University of Health Sciences
Member of Advisory Board
The Foundation for Better Health Care

Awards and Honors:

Department of Physiology and Developmental Biology Distinguished Faculty Award, Brigham Young University, 2006.
College of Life Sciences Outstanding Citizenship Award, Brigham Young University, 2006
Distinguished Fellow, CUNORI College of Medicine and Surgery

Publications:

Woolley BH, Lundberg. Pathology for the Practicing Pharmacist. Symposia Specialists, Miami, Florida, 1976.

Woolley BH, Bulgin JM. Studies in over-the-counter therapeutics. Symposia Specialists, Miami, Florida, 1976.

Woolley BH, Brady ES. New Drugs: Annual Update. Symposia Specialists, Miami, Florida, 1976.

Woolley BH, Gutenberg AW, Brady ES. Pharmacy Business Management. Symposia Specialists, Miami, Florida, 1977.

Woolley BH, Temple AR. Toxicology and Poison Prevention. Symposia Specialists, Miami, Florida, 1977.

Woolley BH, Naftulin DH, Brady ES. Psychopharmacology. Symposia Specialists, Miami, Florida, 1977.

Woolley BH, Hartshorn EA. Drug Interaction: Induced Adverse Drug Reactions. Symposia Specialists Medical Books, Miami, Florida, 1977.

Woolley BH. Emergency Health Care Techniques for the Practicing Pharmacists. Symposia Specialists, Miami, Florida, 1977.

George JL, Woolley BH. Prescription for Effective Communication and Motivation. Symposia Specialists, Miami, Florida, 1978.

Woolley BH, Oppenheimer PR. Clinical Pharmacy in Ambulatory Care. Symposia Specialists, Miami, Florida, 1978.

Woolley, BH. The Emergency Health Care Series, Part II. Abbott Laboratories, 1979.

Woolley BH. The Year Book of Clinical Pharmacy: 1981. Year Book Medical Publishers, Chicago, Illinois, 1981.

Woolley BH. Drug Use and Abuse (Audiobook on Cassette). Recorded Resources Corp, Crofton, Maryland, 1987

Woolley, BH. The Athlete: Use and Misuse of Drugs (VHS Video). Marshfield WI: Marshfield Regional Video Network, 1991.

Woolley BH. The latest fads to increase muscle mass and energy. A look at what some athletes are using. *Postgrad Med.* 89:195-8, 201-5, 1991.

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Woolley BH. An Approach to Drug Classification in Psychopharmacology. *AMCAP* 8:13-18, 1982.

Woolley BH. The Founding of Collegium Aesculapium. *Journal of Collegium Aesculapium* Fall 2004, 12-13, 2004.

**SUMMARY OF THE FACULTY
OF
THE DEPARTMENT OF ZOOLOGY AND ENTOMOLOGY (1925-1970)
AND
THE DEPARTMENT OF ZOOLOGY (1970-2002)**

Name	Vasco M. Tanner
Degrees	A.B., Brigham Young University, 1915; M.A., University of Utah, 1925; PhD, Stanford University, 1925
Years of Service	1925-1970 (Deceased, 1989 https://en.wikipedia.org/wiki/Vasco_M._Tanner)
Courses Taught	General Zoology, Elementary Entomology, Heredity and Eugenics, Invertebrate Zoology, Vertebrate Zoology, Insect Morphology, Insect Classification, General Economic Entomology, History of Biology, Advanced Entomology, Comparative Anatomy of the Vertebrates, Animal Ecology, Field Zoology, Principles of Biological Nomenclature, Systematic and Economic Ornithology, Histology, General Embryology, Aquatic Zoology, Fresh Water Zoology Problems, Arthropods of the Intermountain States, Advanced Study of The Coleoptera, Nature Study for Teachers, Genetics and Racial Hygiene, History of Entomology, Special Problems in Systematic Entomology, Research Work in Insect Morphology, Literature and Zoology of the Great Basin, Advanced Ichthyology, Insect literature and nomenclature, Study of Insect Genitalia, Insect Embryology
Research Area	Entomology, Ichthyology
Administrative	Chair of the Department of Zoology and Entomology, 1925-1958
Name	Charles H. Carroll
Degrees	AB, MD
Years of Service	1925-26
Courses Taught	Human Physiology
Administrative	Medical Director, Brigham Young University
Name	Horace G. Merrill (Brother in law to L. Weston Oaks http://www.lasikateexcel.com/about_us.html)
Degrees	AB, Brigham Young University, 1914; MD, Jefferson Medical College, 1908
Years of Service	1925-1937
Courses Taught	Hygiene and Sanitation, Health Education
Research Area	Specialized in Ear, Nose, and Throat
Administrative	Associate Medical Director, 1922-1937
Name	L. Weston Oaks, MD (Uncle to Elder Dallin H. Oaks, whose father was Lloyd E. Oaks http://www.findagrave.com/cgi-bin/fg.cgi?page=gr&GRid=58530351)
Degrees	MD, Jefferson Medical College, 1919
Years of Service	1925-1944
Courses Taught	Hygiene and Sanitation, Health Education
Research Area	Specialized in Ear, Nose, and Throat
Administrative	Assistant Medical Director, 1924-5; Medical Director, 1925-29
Name	Lloyd L. Cullimore
Degrees	BS, University of Utah, 1922; MD, George Washington Medical College, 1925
Years of Service	1927-1947 (Deceased, 1986 http://www.provlibrary.com/historical-lloyd-l-cullimore)
Courses Taught	Human Physiology, Health Education
Research Area	General Practitioner, Founder of the BYU Student Health Program
Administrative	Assistant Medical Director, 1928, Medical Director, 1929-1947
Name	C. Lynn Hayward
Degrees	BS, Brigham Young University, 1927; MS, Brigham Young University, 1931, PhD, University of Illinois, 1941
Years of Service	1930-1972 (Deceased, 1998 http://www.deseretnews.com/article/649725/Death-C-Lynn-Hayward.html?pg=all)
Courses Taught	Genetics, General Zoology, Invertebrate Zoology, Vertebrate Zoology, Elementary Entomology, Insect Morphology, Insect Classification, Physiology, Evolution and Genetics, Comparative Anatomy, Ornithology, Advanced Study of the Hymenoptera, Human Physiology, Human Physiology Laboratory, Nature Study for Teachers, Field Zoology, Animal Ecology, Histological Organography and Technique, Parasitology, Histology, Histological Technique, Mammalogy, Ornithology, Research in Mammalian Anatomy, Special Problems in Ornithology, Special Problems in Ornithology, Research in Mammalogy and Ornithology, Advanced Ecology
Research Area	Mammalogy, Ornithology, Ecology
Administrative	Chair, Department of Zoology and Entomology, 1958-1962; Curator, Life Science Museum
Name	D. Elden Beck
Degrees	BA, Brigham Young University, 1929; MA, Brigham Young University, 1930; PhD, Iowa State College, 1933
Years of Service	1938-42; 1945-1967 (Deceased, 1967 Tanner, V.M. D. Elden Beck. The Great Basin Naturalist 37:230, 1967)
Courses Taught	Invertebrate Zoology, Comparative Anatomy, Histology, Embryology, Eugenics, General Zoology, Heredity, Vertebrate Anatomy and Physiology, Nature Study for Teachers, Field Zoology, Animal Parasitology, Vertebrate Anatomy and Physiology, Principles of Ecology and Biogeography, Field Methods in Ecology and Faunistics, Distributional Study of Parasitic Arthropods, Studies in the Distribution of Invertebrates, Taxonomy of Local Invertebrate Fauna, Special Problems in Invertebrate Zoology, Animal Biology
Research Area	Entomology
Administrative	Chair, Department of Zoology and Entomology, 1962-66
Name	Alva J. Johanson
Degrees	AB, Brigham Young University, 1931; MA, Brigham Young University, 1924; PhD University of Illinois, 1928
Years of Service	1938-46 (From the Chemistry Department)
Courses Taught	General Physiology, Nutritional Physiology, Special Problems in Nutritional Physiology
Name	Henry J. Nicholes
Degrees	AB, Brigham Young University, 1935; MS, University of Wisconsin, 1939; PhD University of Wisconsin, 1941
Years of Service	1946-1975 (Deceased, 2003 http://www.legacy.com/obituaries/deseretnews/obituary.aspx?n=henry-joseph-nicholes&pid=814047) Transferred from the Department of Health Education and Safety to Zoology and Entomology, Fall, 1966.
Courses Taught	Survey Course in Heredity, Heredity, Human Anatomy and Physiology, General Physiology, Human Physiology, Physiology of Exercise, Endocrinology, Neurology, (Body Fluids, Neurology, Endocrinology), Physiology of Visceral Organs, Elementary Human Anatomy, Animal Biology
Name	Wilmer W. Tanner
Degrees	BS, Brigham Young University, 1937; MS, Brigham Young University, 1938, PhD, University of Kansas, 1949
Years of Service	1949-1976 (Deceased, 2011 http://www.legacy.com/obituaries/saltlaketribune/obituary.aspx?pid=154420682)
Courses Taught	Survey Course in Heredity, Aquatic Zoology, Ichthyology, Herpetology, Parasitology, Insect Morphology, Medical Entomology, Research Work in Systematic Vertebrate Zoology, Studies in the Anatomy of the Amphibia, Geographical Distribution of the Cold-blooded Vertebrates, Natural History of the Amphibia and Reptiles, Advanced Herpetology, Vertebrate Embryology, Histological Technique, Zoogeography, Comparative Vertebrate Anatomy, Advanced Vertebrate Anatomy, Theoretical Zoology, Animal Biology, History of Biology, Parasitology
Research Area	Herpetology
Administrative	

Name	A. Lester Allen
Degrees	AB, University of California at Los Angeles, 1946; PhD, University of California at Los Angeles, 1951
Years of Service	1954-1989 (Deceased, 2014 http://www.walkersanderson.com/obituaries/A-Lester-Allen/Orem-UT/1397878)
Courses Taught	Genetics, Vertebrate Embryology, Experimental Embryology, Radiation Biology, Radiation Biology Laboratory, Theoretical Ecology, Animal Biology, Bioethics
Research Area	Developmental Biology, Radiation Biology
Administrative	Chair, Department of Zoology and Entomology, 1966-1970; Dean, College of Biological and Agricultural Sciences, 1970-1981
Name	Dorald M. Allred
Degrees	BA, Brigham Young University, 1950; MA, Brigham Young University, 1950; PhD, University of Utah, 1954
Years of Service	1956-1987 (Deceased, 1996)
Courses Taught	Research Organization and Reporting, Acarology, Animal Biology, Biology Techniques, Natural History for Elementary Teachers, Applied Ecological Concepts, Nature Study Methods, Parasitology
Research Area	Entomology, Ectoparasites, Nevada Test Site Fauna
Administrative	Administrative Assistant to Dean A. Lester Allen (1974-1977), Assistant Director Bean Museum (1976-1982), Director Bean Museum (1982-1987). http://files.lib.byu.edu/ead/XML/MSS3111.xml
Name	Stephen L. Wood
Degrees	BS, Utah State University, 1946; MS, Utah State University, 1948; PhD, University of Kansas, 1953
Years of Service	1956-1989 (Deceased July 1, 2009 http://zookeys.pensoft.net/articles.php?id=2288)
Courses Taught	Zoological Literature, Insect Classification, Immature Insects, Animal Biology
Research Area	Entomology with specific focus on bark beetle systematics
Name	Elbert R. Simmons
Degrees	BS, Utah State University, 1941; MA, State University of Iowa, 1943
Years of Service	1956-1983 (Deceased, 1997 http://www.deseretnews.com/article/541671/DEATH--ELBERT-R-SIMMONS.html?pg=all)
Courses Taught	Biological Techniques, Animal Biology, Ornithology, Field Studies in Natural History
Name	Arthur O. Chapman
Degrees	BA, Brigham Young University, 1941; MA, University of Kansas, 1949; PhD, University of Nebraska, 1953
Years of Service	1959-1983 (Deceased, 2003 http://www.legacy.com/obituaries/deseretnews/obituary.aspx?n=arthur-owen-chapman&pid=829234)
Courses Taught	Histology, Histological Techniques, Neurology, Etiology and Pathology of Brain Injury, Advanced Histology, Elementary Human Anatomy, Nurses Physiology, Human Anatomy and Physiology Vertebrate Embryology
Name	Herbert H. Frost
Degrees	BA, Brigham Young University, 1941; MA, Brigham Young University, 1947; PhD, Cornell University, 1955
Years of Service	1960-1983 (Deceased, 2001 http://www.deseretnews.com/article/825798/Obituary-Herbert-Hamilton-Frost.html?pg=all)
Courses Taught	History and Philosophy of Biology, Ornithology, Zoogeography, Animal Biology, Vertebrate Zoology, Heredity, Wildlife Conservation, Elementary Human Anatomy
Research Area	Ornithology
Name	Joseph R. Murphy
Degrees	BA, Brigham Young University, 1950; MA, Brigham Young University, 1951, PhD, University of Nebraska, 1957
Years of Service	1960-1986 (Deceased 1992 http://www.deseretnews.com/article/233059/DEATH--DR-JOSEPH-R-MURPHY.html?pg=all)
Courses Taught	Introduction to Animal Ecology, Animal Biology, Environmental Biology, Animal Ecology, Elementary Human Anatomy
Research Area	Ecology, Bald Eagle Research
Administrative	Chair, Department of Zoology, 1970-1975 https://archive.org/stream/catalogofcourses19701972brig#page/512/mode/2up
Name	August Jaussi
Degrees	BS, University of Idaho, 1953; MS, Brigham Young University, 1955; PhD, Oklahoma State University, 1960
Years of Service	1962-1990
Courses Taught	Mammalian Physiology, Endocrinology, Experimental Endocrinology, Advanced Physiology I,II, General and Comparative Physiology, Elementary Human Physiology
Research Area	Comparative Physiology
Name	Lee F. Braithwaite
Degrees	BS, Brigham Young University, 1959; MS, Brigham Young University, 1962; PhD, Brigham Young University, 1970
Years of Service	1962-2011
Courses Taught	Invertebrate Zoology, Advanced Invertebrate Zoology I, II, Introduction to Marine Biology, Animal Biology, Research in Marine Ecology, Development of Marine Animals, Aquaculture, Adaptive Strategies of Animals, Evolutionary Science, Vertebrate and Envertebrate Strategies (Animal Diversity)
Research Area	Marine Biology
Name	Clive D. Jorgensen
Degrees	BS, Brigham Young University, 1954; MS, Brigham Young University, 1957; PhD, Oregon State University, 1964
Years of Service	1963-1996
Courses Taught	Economic Entomology, Population Ecology, Integrative Principles of Zoology, Environmental Biology, Tropical Biology
Research Area	Entomology, Mammalogy, Fauna of the Nevada Test Site
Administrative	Chair, Department of Zoology, 1975-1981
Name	Ferron L. Andersen
Degrees	BS, Utah State University, 1957; MS, Utah State University, 1960; MS, University of Illinois, 1962; PhD, Utah State University, 1963
Years of Service	1966-1998
Courses Taught	Human Parasitology, General Parasitology, Experimental Parasitology, History and Philosophy of Biology, Research Methodology, Research Orientation, Medical Entomology, Veterinary Parasitology
Research Area	Parasitology, Human Parasitology, Hydatid Disease
Administrative	Chair, Department of Zoology, 1981-1984
Name	Richard W. Heninger
Degrees	BS, Brigham Young University, 1957; MS, Oklahoma State University, 1959; PhD, Oklahoma State University, 1961
Years of Service	1966-1999
Courses Taught	Mammalian Physiology, Endocrinology, Experimental Endocrinology, Advanced Physiology I,II, Elementary Human Physiology, Applied Human Physiology, Pathophysiology
Research Area	Endocrinology, Thyroid Hormone Metabolism and Actions
Administrative	Chair, Department of Zoology, 1983-1988, Associate Dean, College of Biology and Agriculture, BYU, 1988-1998

Name	David A. White
Degrees	BS, Brigham Young University, 1961; MS, Brigham Young University, 1964; PhD, University of Wisconsin, 1967
Years of Service	1966-1978
Courses Taught	Ichthyology, Animal Biology, Comparative Vertebrate Anatomy
Research Area	Aquatic Ecology
Name	Clyde L. Pritchett
Degrees	BS, Brigham Young University, 1955; MS, Brigham Young University, 1962; PhD, University of Wyoming, 1977
Years of Service	1967-1992 (Deceased, 2014 http://www.utahvalleyfuneral.com/obituaries/Clyde-Pritchett/#/Obituary)
Courses Taught	Vertebrate Zoology, Natural History of the Vertebrates, Natural History for Elementary Teachers, Applied Ecology Concepts
Research Area	Ecology of Small Mammals of Wyoming
Name	Peter A. Nyberg
Degrees	BS, Utah State University, 1962; MS, Utah State University 1964; PhD, Oregon State University, 1967
Years of Service	1968-1971 (Deceased, 1993 http://www.findagrave.com/cgi-bin/fg.cgi?page=gr&GRid=95777109)
Courses Taught	Protozoology, General Parasitology, Experimental Parasitology, Animal Biology,
Research Area	Parasitology, Integrative Principles of Zoology
Name	Vernon J. Tipton
Degrees	BS, Brigham Young University, 1948; MS, Brigham Young University, 1949; PhD, University of California (Berkeley), 1959
Years of Service	1968-1983 (Deceased, 2001 http://www.deseretnews.com/article/885175/Obituary-Vernon-J-Tipton.html?pg=all https://archive.org/stream/commencementexer1997brig#page/10/mode/2up)
Courses Taught	Introductory Entomology, Medical Entomology, Animal Biology
Research Area	Entomology
Name	James R. Barnes
Degrees	BS, Brigham Young University, 1963; MS, Oregon State University, 1967; PhD, Oregon State University, 1972
Years of Service	Hire Date: 1969
Courses Taught	Invertebrate Zoology, Environmental Biology, Aquatic Ecosystems, Integrative Principles of Zoology, Stream Ecosystems, Freshwater Biology, Vertebrate and Invertebrate Strategies
Research Area	Ecology, Freshwater Biology
Name	James L. Farmer
Degrees	BS, California Institute of Technology, 1960; PhD, Brown University, 1966
Years of Service	1969-2000 (Deceased, 2008 https://billiongraves.com/grave/GLADYS-CLARK-FARMER/15743822)
Courses Taught	Molecular Biology, Radiation Biology, Animal Biology, Biochemical Genetics, Theoretical Zoology, Genetics and Molecular Biology
Research Area	Genetics, Molecular Biology
Name	Duane E. Jeffery
Degrees	BS, Utah State University, 1962; MS, Utah State University, 1963; MA, University of California at Berkeley, 1966; PhD, University of California at Berkeley, 1972
Years of Service	1969-2009 http://ismagazine.byu.edu/issues/spring2009/profilesretirees.aspx
Courses Taught	Heredity, General Genetics, Genetics Laboratory, Human Genetics, Developmental Genetics, Comparative Evolution, Human Heredity and Reproduction, Evolutionary Science, History and Philosophy of Biology, Science of Biology, Biological Diversity
Research Area	Evolutionary Genetics
Name	H. Duane Smith
Degrees	BS, Brigham Young University, 1963; MS, Brigham Young University, 1966; PhD, University of Illinois, Urbana, 1969
Years of Service	1969-2009 http://ismagazine.byu.edu/issues/fall2006/steppingdown.aspx
Courses Taught	Vertebrate Zoology, Mammalogy, Community Ecology I,II, Animal Biology, Wildlife and Fish Management, General Ecology, Terrestrial and Rangeland Ecosystems, Limnology, Natural History of the Vertebrates
Research Area	Ecology
Administrative	Chair, Department of Zoology, 1988-1995; Director, Monte L. Bean Museum, 1994-2006 (http://mlbean.byu.edu/Portals/26/docs/Education/2009%20Annual%20Report.pdf)
Name	Armand T. Whitehead
Degrees	BS, Brigham Young University, 1965; PhD, University of California at Berkeley, 1969
Years of Service	1969-1999
Courses Taught	Insect Life, External Morphology of Insects, Internal Morphology and Physiology of Insects, Heredity, Elementary Human Physiology, Cell Biology, Insect Physiology, Natural History of Wildlife
Research Area	Insect Physiology
Name	Verl P. Allman
Degrees	BS, Brigham Young University, 1948; MS, Brigham Young University, 1952
Years of Service	1970-1983 (Deceased, 2008 http://www.byhigh.org/cgi-bin/ez-directory/dispAssoc.cgi?A&X329586&75)
Courses Taught	Animal Biology, Secondary Teaching Procedures in Biology, Natural History for Elementary Teachers
Research Area	Secondary Education Biology Teaching Strategies
Administrative	
Name	William S. Bradshaw
Degrees	BA, Harvard University, 1961; PhD, University of Illinois, 1968
Years of Service	1970-2008 http://ismagazine.byu.edu/issues/Spring2008/profilesretireesnewfaculty.aspx
Courses Taught	Developmental Genetics, Embryology, Experimental Embryology, Advanced Topics in Embryology, Cellular and Developmental Biology, Developmental Biology, Cell Biology, Molecular Biology
Research Area	Science Education
Administrative	Associate Dean, General Education, Honors, Brigham Young University, 1983-1987
Name	Gerald L. Hayward
Degrees	BS, Brigham Young University, 1963; MD, University of Utah, 1967
Years of Service	1970-1976 (Established Provo Surgical Center)
Courses Taught	Elementary Human Physiology, Elementary Human Anatomy
Research Area	Anesthesiology
Administrative	

Name	Clayton M. White
Degrees	BA, University of Utah, 1961; PhD, University of Utah, 1968
Years of Service	1970-2009 http://ismagazine.byu.edu/issues/spring2009/profilesretirees.aspx
Courses Taught	Evolution, Biogeography, Bird Families of the World, Ornithology, and Vertebrate Zoology, Animal Biology, Natural History of the Vertebrates, Comparative Evolutionary Theory, Zoogeography, Raptor Biology, Wild Bird Families, Natural History of Wildlife, Vertebrate and Invertebrate Strategies (Changed to Animal Diversity in 2000)
Research Area	Ornithology, Raptor Research
Name	Wade E. Miller
Degrees	BS, Brigham Young University, 1960; MS, University of Arizona, 1963; PhD, University of California, Berkeley, 1963
Years of Service	1971-1977 (Joint Appointment in Zoology and Geology until 1977; Geology 1977-2002)
Courses Taught	Comparative Anatomy, Osteology
Research Area	Paleontology
Name	Gary M. Booth
Degrees	BS, Utah State University, 1963; MS, Utah State University, 1968; PhD, University of California, Riverside, 1969
Years of Service	1972-2015 http://ismagazine.byu.edu/issues/Spring2015/Retirees.aspx
Courses Taught	Introduction to Biology, Economic Entomology, Comparative Toxicology, Introduction to Entomology, Elementary Human Physiology, Animal Diversity
Research Area	Toxicology, Environmental Biology
Name	Richard A. Heckman
Degrees	BS, Utah State University, 1954; MS, Utah State University, 1958; PhD, Montana State University, 1970
Years of Service	1972-2005
Courses Taught	Preview Dentistry, Histology, Diseases of Fish and Wildlife, Human Parasitology, Medical Parasitology, Integrative Principles of Zoology, Advanced Topics in Histology, Aquaculture
Research Area	Parasitology, Fish Parasites
Name	Robert E. Seegmiller
Degrees	BS, University of Utah, 1965; MS, University of Utah, 1967; PhD, McGill University, 1970
Years of Service	1972-2011 http://ismagazine.byu.edu/issues/Spring2012/AHeartfeltThanks.aspx
Courses Taught	Human Embryology, Elementary Human Anatomy, Introduction to Human Biology, Developmental Biology, Human Heredity and Reproduction, Cell Biology, Advanced Topics in Teratology, Teratology Techniques, Honors Introductory Zoology, Elementary Human Anatomy
Research Area	Teratology, Mouse Models of Collagen Mutants
Name	R. Ward Rhees
Degrees	BS, University of Utah, 1967; PhD, Colorado State University, 1971
Years of Service	1973-2012 http://ismagazine.byu.edu/issues/Fall2012/Retirees.aspx
Courses Taught	Elementary Human Anatomy, Introduction to Human Biology, Applied Human Physiology, Physiology of Drug Mechanisms, Endocrinology, Principles of Physiology, Reproductive Neuroendocrinology
Research Area	Endocrinology, Neuroscience, Sexual Differentiation of the Brain
Administrative	Chair, Physiology and Developmental Biology
Name	Hal L. Black
Degrees	BS, University of Utah, 1966; MS, University of Utah, 1968; PhD, University of New Mexico, 1972
Years of Service	1975-2008 (Transferred from the Multicultural Education Program in 1976) http://ismagazine.byu.edu/issues/Fall2008/profiles.aspx
Courses Taught	Introduction to Biological Science, Biology of Man, Sociobiology, Vertebrate and Invertebrate Strategies, Mammalogy, Appreciation of Nature, Tropical Biology, Ornithology
Research Area	Bat Ecology, Black Bear Ecology, Tropical Biology, Navajo Guard Dogs
Name	Kent VanDeGraaff
Degrees	BS, Weber State College, 1965; MA, University of Utah, 1969; PhD, Northern Arizona University, 1974
Years of Service	1975-1995 (Moved to Weber State University; Deceased, 2005 http://www.legacy.com/obituaries/deseretnews/obituary.aspx?pid=15907086)
Courses Taught	Elementary Human Anatomy, Advanced Anatomy, Comparative Vertebrate Anatomy, Herpetology
Research Area	Anatomy Teaching Aids and Anatomy Texts
Name	Richard W. Baumann
Degrees	BA, University of Utah, 1965; MS, University of Utah, 1967; PhD, University of Utah, 1970
Years of Service	1975-2006 http://ismagazine.byu.edu/issues/Fall2006/steppingdown.aspx
Courses Taught	Introduction to Entomology, Aquatic Entomology, Field Entomology, Systematic Zoology, Insect Classification
Research Area	Entomology, Stonefly Research
Administrative	Director, Bean Museum, 1982-1983
Name	Ronald L. Urry
Degrees	BS, Weber State College, 1970; MS, Utah State University, 1972; PhD, Utah State University, 1973
Years of Service	1976-1982 (Moved to establish the University Fertility Center at the University of Utah; Deceased, 1997 http://www.deseretnews.com/article/563759/Death--Ronald-Lee-Urry.html?pg=all)
Courses Taught	Applied Human Physiology, Environmental Physiology
Research Area	Human Reproduction, Treatment of Infertility
Name	Don D. Bloxham
Degrees	BS, Idaho State University, 1967; MS, Idaho State University, 1969; PhD, Louisiana State University, 1973
Years of Service	1978-2006 http://ismagazine.byu.edu/issues/Fall2006/steppingdown.aspx
Courses Taught	Dental Techniques, Preview into Medicine, Clinical Observations in Predentistry, Clinical Observations in Medicine, Principles of Physiology, Preview into Optometry, Preview into Dentistry
Administrative	Director, Preprofessional Office
Name	Dennis K. Shiozawa
Degrees	BA, Weber State College, 1972; MS, Brigham Young University, 1975; PhD, University of Minnesota, St. Paul, 1978
Years of Service	1978
Courses Taught	Environmental Biology, Fishery Biology, Aquatic Sampling and Statistics, Ecology, Limnology, Ichthyology
Research Area	Ecology and Systematics, Molecular Systematics of Intermountain Fishes
Administrative	Chair, Department of Biology, Brigham Young University

Name	William W. Winder
Degrees	BS, Brigham Young University, 1966; PhD, Brigham Young University, 1971
Years of Service	1982-2012 http://ismagazine.byu.edu/issues/Fall2012/Retirees.aspx
Courses Taught	Elementary Human Physiology, Endocrinology, Experimental Endocrinology, Cellular and Molecular Physiology, Advanced Topics in Physiology, Introduction to Book of Mormon
Research Area	Regulation of Liver and Skeletal Muscle Metabolism, AMP-Activated Protein Kinase
Administrative	Assistant Department Chair, Department of Zoology, 1999-2000; Assistant Department Chair, Department of Physiology and Developmental Biology, 2000-2009; Chair, Department of Physiology and Developmental Biology, 2009-2012.
Name	Jack W. Sites
Degrees	BS, Austin Peay State University, 1973; MS, Austin Peay State University, PhD, Texas A&M University, 1980
Years of Service	1982-
Courses Taught	Comparative Vertebrate Anatomy, Advance Topics in Evolutionary Genetics, Herpetology, Evolutionary Science, Phylogenetic Systematics, Vertebrate and Invertebrate Strategies (Changed to Animal Diversity in 2000), Principles of Conservation Biology
Research Area	Evolutionary Genetics and Systematics
Name	Richard R. Tolman
Degrees	BS, University of Utah, 1963; MS, University of Utah, 1964; PhD, Oregon State University, 1969
Years of Service	1982-2003 http://www.uvu.edu/profpages/data/acrobats/10002571.pdf
Courses Taught	Biology 100, Biology 101, Zoology 334 (Nature Study Methods), Zoology 338 (Bioethics) Zoology 515R, Secondary Education 515R, 276, 476, 514R, Rel C 491-2, Honors 344R
Research Area	Cognitive Science - information processing in genetics problem solving; Science teacher training and instruction
Administrative	Chair, Department of Zoology, 1994-1998; Associate Dean, College of Biology and Agriculture, 1998-2001; Chair, Department of Physiology and Developmental Biology, 2001-2002
Name	Lamont W. Smith
Degrees	BS, Brigham Young University, 1960; MS, University of Wisconsin, Madison, 1962; PhD, West Virginia University, 1970
Years of Service	1970-1994 (Transferred from Animal Science to Zoology, 1986) (Deceased, 2010, http://www.heraldextra.com/lifestyles/announcements/obituaries/lamont-wood-smith/article_fe8612c2-4145-5071-b402-6789c8bd16cc.html)
Courses Taught	Elementary Human Anatomy
Research Area	Dairy Cattle Research
Name	Brian A. Maurer
Degrees	BS, Brigham Young University, 1977; MS, West Virginia University, 1980; MS, University of Arizona, 1982; PhD, University of Arizona, 1984
Years of Service	1986-2000 (Moved to Michigan State University https://msu.edu/~maurerb/)
Courses Taught	Ecology Theory, Terrestrial and Rangeland Ecology, Evolutionary Science, Natural History of Wildlife, Ecological Data Analysis, Biological Conservation, Ornithology, Quantitative Ecology, Introductory Biology
Research Area	Ecology
Name	R. Paul Evans
Degrees	BS, Brigham Young University, 1979; PhD, Medical College of Virginia, 1983
Years of Service	1987
Courses Taught	Cellular and Developmental Biology, Advanced Topics in Evolutionary Genetics, Gene Regulation, Honors Introductory Zoology, Molecular Biology, Genetics and Cell Biology Lab
Research Area	Molecular Biology
Name	Marek J. Kaliszewski
Degrees	MS, A. Mickiewicz University, 1977; PhD, A Mickiewicz University, 1981
Years of Service	1989-1994 (Lost his life in an auto accident in Provo Canyon, October 1992, http://www.sciencedirect.com/science/article/pii/S0065308X08600)
Courses Taught	Systematic Zoology, Medical Entomology
Research Area	Acarology, Evolution of Parasitism of Tarsonemina families
Name	Duke S. Rogers
Degrees	BS, Texas A&M University, 1976; MS, Texas A&M University, 1979; PhD, University of California, Berkeley, 1986
Years of Service	1989
Courses Taught	Evolutionary Science, Natural History of Wildlife, Molecular Methods in Systematics, Vertebrate and Invertebrate Strategies, Mammalogy, Advanced Topics in Ecology and
Research Area	Ecology and Systematics
Administrative	Director, M.L. Bean Museum, 2016-
Name	John D. Bell
Degrees	BS Brigham Young University, 1982; PhD, University of California, San Diego, 1987
Years of Service	1990
Courses Taught	Principles of Physiology, Physiology of Drug Mechanisms, Elementary Human Anatomy, Cellular Biology, Renal and Gastrointestinal Physiology, Science of Biology
Research Area	Membrane Biophysics
Administrative	Chair, Department of Zoology, 1999-2002; Associate Dean, College of Life Sciences, Dean, Undergraduate Education, 2008-2014
Name	Allan M. Judd
Degrees	BS, Brigham Young University, 1973; MS, Brigham Young University, 1978; PhD, West Virginia University, 1982.
Years of Service	1991
Courses Taught	Elementary Human Physiology, Pathophysiology, Cardiovascular and Respiratory Physiology, Principles of Physiology
Research Area	Endocrinology, Adrenal Hormones, Immunoendocrinology
Name	Mark C. Belk
Degrees	BS, Brigham Young University, 1985; MS, Brigham Young University, 1987; PhD, University of Georgia, 1992
Years of Service	1992
Courses Taught	Environmental Biology, Appreciation of Nature, Theoretical Ecology, Ecology
Research Area	Aquatic Ecology, June Suckers of Utah Lake
Name	Edwin D. Lephart
Degrees	BS, Brigham Young University, 1979; MS, Brigham Young University, 1982; PhD, University of Texas Southwestern Medical Center, Dallas, 1989
Years of Service	1994-2015 http://ismagazine.byu.edu/issues/Spring2015/Retirees.aspx
Courses Taught	Elementary Human Anatomy, Principles of Physiology, Human Biology, Pathophysiology, Reproductive Endocrinology
Research Area	Development of polyphenolic molecules for use in treatment of prostate health, baldness, brain health, and skin health.
Administrative	Founder and Director, Neuroscience Center, Brigham Young University

Name	David D. Busath
Degrees	BA, University of Utah, 1974; MD, University of Utah, 1978
Years of Service	1995
Courses Taught	Elementary Human Anatomy, Neurophysiology
Research Area	Biophysics, Molecular Modeling, Development of Antiviral Drugs
Administrative	
Name	Randy L. Bennett
Degrees	BA, Western Maryland College, 1985; PhD, University of Wisconsin, Madison, 1993
Years of Service	1995-2000 (Moved to Juniata College, Huntingdon, PA, http://jsites.juniata.edu/faculty/bennett/personal/)
Courses Taught	Molecular Biology, Genetics
Research Area	Molecular Biology of Development
Name	Keith A. Crandall
Degrees	BA, Kalamazoo College, 1987; PhD, Washington University, 1993
Years of Service	1995-2012 (Moved to The Department of Biological Sciences at George Washington University where he is Director of the Computational Biology Institute, https://biology.columbian.gwu.edu/keith-crandall)
Courses Taught	Vertebrate and Invertebrate Strategies, Advanced Topics in Genetics, Genetics of Natural Populations, Molecular Evolution, Research Orientation
Research Area	Molecular Evolution, Population Genetics
Administrative	Chair, Department of Biology
Name	Michael Whiting
Degrees	BS, Brigham Young University, 1990; PhD, Cornell University, 1994
Years of Service	1997
Courses Taught	Evolutionary Science, Phylogenetic Systematics, Insect Classification
Research Area	Systematic Entomology, Molecular Phylogenetics and Evolution
Name	Laura C. Bridgewater
Degrees	BS, Brigham Young University, 1989; PhD, George Washington University, 1995
Years of Service	1998
Courses Taught	Developmental Genetics, Molecular Biology
Research Area	Molecular Biology; Gene Regulation
Administrative	Chair, Department of Microbiology and Molecular Biology; Associate Dean, College of Life Sciences
Name	James P. Porter
Degrees	BS, Brigham Young University, 1976; MS, Brigham Young University, 1978; PhD, University of California, San Francisco, 1982
Years of Service	1998
Courses Taught	Principles of Physiology, Pathophysiology
Research Area	Neuroendocrinology of Blood Pressure Regulation
Administrative	Chair, Department of Physiology and Developmental Biology, Associate Dean, College of Life Sciences, Dean, College of Life Sciences.
Name	C. Riley Nelson
Degrees	BS, Utah State University, 1980; MS, Utah State University, 1984; PhD, Brigham Young University, 1986
Years of Service	1999
Courses Taught	Field Entomology, Animal Diversity
Research Area	Systematic Entomology and Insect Distribution and Life History
Name	Steven L. Peck
Degrees	BS, Brigham Young University, 1995; MS, University of North Carolina, 1988; PhD, North Carolina State University, 1997
Years of Service	2000
Courses Taught	Environmental Biology, Ecology
Research Area	Evolutionary Ecology, Ecological Modeling,
Name	Russell B. Rader
Degrees	BS, Brigham Young University, 1977; MS, Brigham Young University, 1982; PhD, Colorado State University, 1987
Years of Service	2000
Courses Taught	Science of Biology, Limnology
Research Area	Aquatic Ecology
Name	Kent A. Hatch
Degrees	BS, Brigham Young University, 1990; MS, University of Wisconsin, 1995; PhD, University of Wisconsin, 1996
Years of Service	2001-2009 (Moved to Long Island University, http://liu.edu/CWPost/Academics/Faculty/Faculty/H/Kent-A-Hatch?rn=Faculty+Profiles&ru=/CWPost/Academics/Faculty/Faculty)
Courses Taught	Ecology, Biological Diversity
Research Area	Physiological Ecology, Stable Isotope Research
Name	David A. McClellan
Degrees	BS, Brigham Young University, 1992; MS, Brigham Young University, 1994; PhD, Louisiana State University, 1999
Years of Service	2001-2007 (Moved to Bigelow Lab for Ocean Sciences, and then to the University of Arkansas, Fort Smith where he is Head of the Biology Department https://www.linkedin.com/in/davidamcclellan)
Courses Taught	Evolutionary Biology
Research Area	Molecular Adaptation and Evolutionary Bioinformatics in marine organisms https://www.bigelow.org/research/srs/david_a_mcclellan/
Name	Michael R. Stark
Degrees	BS, Brigham Young University, 1992; MS, Idaho State University, 1994; PhD, University of California, Irvine, 1998
Years of Service	2001
Courses Taught	Human Anatomy, Developmental Biology
Research Area	Developmental Biology, Regulation of Development of the Nervous System

Name	Sterling Sudweeks
Degrees	BS, Brigham Young University, 1992; PhD, University of Utah, 1997
Years of Service	2001
Courses Taught	Principles of Physiology
Research Area	Neurophysiology, Acetylcholine Receptors
Name	Bruce H. Woolley
Degrees	BS, University of Utah, 1965; PharmD, University of Southern California, 1972
Years of Service	1977-2008 (Transferred from Food and Nutrition to Zoology in 2002) http://ismagazine.byu.edu/issues/Fall2008/profiles.aspx
Courses Taught	Physiology of Drug Mechanisms, Parasitology, Science of Biology
Administrative	Director, Student Health Center, Executive Committee Member, LDS Church Medical Advisory Committee, Director of the Drug Abuse Prevention and Education Office at Brigham Young University
Name	Dixon J. Woodbury
Degrees	BA, University of Utah, 1980; PhD, University of California, Berkeley, 1986
Years of Service	2001
Courses Taught	Human Physiology
Research Area	Biophysics, Vesicle Fusion
Administrative	Chair, Department of Physiology and Developmental Biology, 2012-
Names of other part-time instructors	Heather Wilson (Human Physiology), Duane Winden (Human Anatomy), Rachel Tomco (Human Anatomy), Ann Haines (Human Physiology, Pathophysiology at Salt Lake Center)

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